

## Chapter 1 – We the Travellers – I

### Practice Time 1.1

**Q1(a). Arrange the digits of 58,495 in the place value chart.**

**Given:**

Number = 58,495

**Solution:**

Place Value	T-Th	Th	H	T	O
Digit	5	8	4	9	5

**Answer:**

The digits are arranged as shown above.

**Q1(b). Arrange the digits of 58,552 in the place value chart.**

**Given:**

Number = 58,552

**Solution:**

Place Value	T-Th	Th	H	T	O
Digit	5	8	5	5	2

**Answer:**

The digits are arranged as shown above.

**Q1(c). Arrange the digits of 56,592 in the place value chart.**

**Given:**

Number = 56,592

**Solution:**

Place Value	T-Th	Th	H	T	O
Digit	5	6	5	9	2

**Answer:**

The digits are arranged as shown above.

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**Q1(d). Arrange the digits of 84,298 in the place value chart.**

**Given:**

Number = 84,298

**Solution:**

<b>Place Value</b>	<b>T-Th</b>	<b>Th</b>	<b>H</b>	<b>T</b>	<b>O</b>
<b>Digit</b>	8	4	2	9	8

**Answer:**

The digits are arranged as shown above.

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**Q2(a). Arrange 95,456 in the place value chart and write it in words.**

**Given:**

Number = 95,456

**Solution:**

<b>Place Value</b>	<b>T-Th</b>	<b>Th</b>	<b>H</b>	<b>T</b>	<b>O</b>
<b>Digit</b>	9	5	4	5	6

**Number Name:**

Ninety-five thousand four hundred and fifty-six.

**Answer:**

95,456 = **Ninety-five thousand four hundred and fifty-six**

---

**Q2(b). Arrange 56,585 in the place value chart and write it in words.**

**Given:**

Number = 56,585

**Solution:**

<b>Place Value</b>	<b>T-Th</b>	<b>Th</b>	<b>H</b>	<b>T</b>	<b>O</b>
Digit	5	6	5	8	5

**Number Name:**

Fifty-six thousand five hundred and eighty-five.

**Answer:**

56,585 = **Fifty-six thousand five hundred and eighty-five**

---

**Q2(c). Arrange 88,885 in the place value chart and write it in words.**

**Given:**

Number = 88,885

**Solution:**

<b>Place Value</b>	<b>T-Th</b>	<b>Th</b>	<b>H</b>	<b>T</b>	<b>O</b>
Digit	8	8	8	8	5

**Number Name:**

Eighty-eight thousand eight hundred and eighty-five.

**Answer:**

88,885 = **Eighty-eight thousand eight hundred and eighty-five**

---

**Q2(d). Arrange 95,967 in the place value chart and write it in words.**

**Given:**

Number = 95,967

**Solution:**

<b>Place Value</b>	<b>T-Th</b>	<b>Th</b>	<b>H</b>	<b>T</b>	<b>O</b>
Digit	9	5	9	6	7

**Number Name:**

Ninety-five thousand nine hundred and sixty-seven.

**Answer:**

95,967 = **Ninety-five thousand nine hundred and sixty-seven**

---

**Q3(a). Write the following number in words.**

**Given Place Value Chart:**

<b>T-Th</b>	<b>Th</b>	<b>H</b>	<b>T</b>	<b>O</b>
5	7	1	7	5

**Solution:**

Number formed = 57,175

**Number Name:**

Fifty-seven thousand one hundred and seventy-five.

**Answer:**

**Fifty-seven thousand one hundred and seventy-five**

---

**Q3(b). Write the following number in words.**

**Given Place Value Chart:**

<b>T-Th</b>	<b>Th</b>	<b>H</b>	<b>T</b>	<b>O</b>
9	8	4	3	2

**Solution:**

Number formed = 98,432

**Number Name:**

Ninety-eight thousand four hundred and thirty-two.

**Answer:**

**Ninety-eight thousand four hundred and thirty-two**

---

**Q4. Riya took a small loan from the bank to start her bakery. The bank manager gave her a cheque of twenty-three thousand four hundred fifty-six**

**rupees. What should the bank manager write on the cheque for the amount in figures?**

**Given:**

Amount in words = Twenty-three thousand four hundred fifty-six rupees

**To Find:**

Amount in figures

**Solution:**

Step 1: Twenty-three thousand = 23,000

Step 2: Four hundred fifty-six = 456

Step 3: Add both parts

$$23,000 + 456 = 23,456$$

**Answer:**

The bank manager should write **₹23,456** on the cheque.

### **Practice Time 1.2**

**Q1(a). Compare 67,458 and 68,910 using >, < or =.**

**Given:**

67,458 and 68,910

**Solution:**

Compare the ten-thousands digit.

$$6 = 6$$

Now compare the thousands digit.

$$7 < 8$$

Therefore,

$$67,458 < 68,910$$

**Answer:**

$$67,458 < 68,910$$

---

**Q1(b). Compare 90,000 and 89,999.**

**Given:**

90,000 and 89,999

**Solution:**

Compare the ten-thousands digit.

$9 > 8$

Therefore,

$90,000 > 89,999$

**Answer:**

**$90,000 > 89,999$**

---

**Q1(c). Compare 14,999 and 14,998.**

**Given:**

14,999 and 14,998

**Solution:**

Ten-thousands digit = same

Thousands digit = same

Hundreds digit = same

Tens digit = same

Compare ones digit.

$9 > 8$

Therefore,

$14,999 > 14,998$

**Answer:**

**$14,999 > 14,998$**

---

**Q1(d). Compare 76,864 and 78,889.**

**Given:**

76,864 and 78,889

**Solution:**

Compare the ten-thousands digit.

$$7 = 7$$

Compare the thousands digit.

$$6 < 8$$

Therefore,

$$76,864 < 78,889$$

**Answer:**

$$76,864 < 78,889$$

---

**Q1(e). Compare 87,776 and 87,765.**

**Given:**

87,776 and 87,765

**Solution:**

Ten-thousands digit = same

Thousands digit = same

Hundreds digit = same

Compare tens digit.

$$7 > 6$$

Therefore,

$$87,776 > 87,765$$

**Answer:**

$$87,776 > 87,765$$

---

**Q1(f). Compare 55,545 and 54,576.**

**Given:**

55,545 and 54,576

**Solution:**

Ten-thousands digit = same

Compare thousands digit.

$5 > 4$

Therefore,

$55,545 > 54,576$

**Answer:**

$55,545 > 54,576$

---

**Q1(g). Compare 23,658 and 23,643.**

**Given:**

23,658 and 23,643

**Solution:**

Ten-thousands digit = same

Thousands digit = same

Hundreds digit = same

Compare tens digit.

$5 > 4$

Therefore,

$23,658 > 23,643$

**Answer:**

$23,658 > 23,643$

---

**Q1(h). Compare 69,246 and 69,246.**

**Given:**

69,246 and 69,246

**Solution:**

Both numbers are exactly the same.

Therefore,

$$69,246 = 69,246$$

**Answer:**

$$69,246 = 69,246$$

---

**Q2(a). Sunita distributes 60,024 food packets while Shikha distributes 50,024 food packets. Who distributed more packets?**

**Given:**

Sunita distributed = 60,024 packets

Shikha distributed = 50,024 packets

**To Find:**

Who distributed more food packets?

**Solution:**

Compare the numbers.

$$60,024 > 50,024$$

Therefore, Sunita distributed more food packets than Shikha.

**Answer:**

**Sunita distributed more food packets.**

---

**Q2(b). What values do you learn from this activity?**

**Solution:**

This activity teaches us that we should help people in need and contribute to society.

**Answer:**

The values shown are:

- Kindness
  - Helping others
  - Social responsibility
  - Caring for the community
  - Humanity
- 

### **Practice Time 1.3**

**Q1(a). Arrange the numbers in ascending order.**

**Given Numbers:**

87,652; 98,866; 67,687; 47,888; 88,786

**Solution:**

Ascending order means arranging numbers from the smallest to the greatest.

$47,888 < 67,687 < 87,652 < 88,786 < 98,866$

**Answer:**

**47,888, 67,687, 87,652, 88,786, 98,866**

---

**Q1(b). Arrange the numbers in ascending order.**

**Given Numbers:**

87,997; 32,424; 89,896; 76,769; 76,887

**Solution:**

$32,424 < 76,769 < 76,887 < 87,997 < 89,896$

**Answer:**

**32,424, 76,769, 76,887, 87,997, 89,896**

---

**Q1(c). Arrange the numbers in ascending order.**

**Given Numbers:**

12,555; 63,252; 87,878; 62,569; 10,388

**Solution:**

$$10,388 < 12,555 < 62,569 < 63,252 < 87,878$$

**Answer:**

**10,388, 12,555, 62,569, 63,252, 87,878**

---

**Q1(d). Arrange the numbers in ascending order.**

**Given Numbers:**

47,525; 21,471; 41,963; 32,845

**Solution:**

$$21,471 < 32,845 < 41,963 < 47,525$$

**Answer:**

**21,471, 32,845, 41,963, 47,525**

---

**Q2(a). Arrange the numbers in descending order.**

**Given Numbers:**

65,865; 87,766; 46,855; 76,878; 76,588

**Solution:**

Descending order means arranging numbers from the greatest to the smallest.

$$87,766 > 76,878 > 76,588 > 65,865 > 46,855$$

**Answer:**

**87,766, 76,878, 76,588, 65,865, 46,855**

---

**Q2(b). Arrange the numbers in descending order.**

**Given Numbers:**

56,357; 26,725; 47,886; 87,348; 33,354

**Solution:**

$$87,348 > 56,357 > 47,886 > 33,354 > 26,725$$

**Answer:**

**87,348, 56,357, 47,886, 33,354, 26,725**

---

**Q2(c). Arrange the numbers in descending order.**

**Given Numbers:**

49,798; 28,733; 74,886; 34,748; 56,809

**Solution:**

$74,886 > 56,809 > 49,798 > 34,748 > 28,733$

**Answer:**

**74,886, 56,809, 49,798, 34,748, 28,733**

---

**Q2(d). Arrange the numbers in descending order.**

**Given Numbers:**

42,124; 89,214; 21,523; 78,741

**Solution:**

$89,214 > 78,741 > 42,124 > 21,523$

**Answer:**

**89,214, 78,741, 42,124, 21,523**

---

### **Practice Time 1.4**

**Q1(a). Find the place value of the underlined digit 2 in 42,369.**

**Given:**

Number = 42,369

Underlined digit = 2

**Solution:**

In the number 42,369, the digit 2 is in the thousands place.

Place Value =  $2 \times 1000$

$$= 2,000$$

**Answer:**

**2,000**

---

**Q1(b). Find the place value of the underlined digit 2 in 59,342.**

**Given:**

Number = 59,342

Underlined digit = 2

**Solution:**

The digit 2 is in the ones place.

Place Value =  $2 \times 1$

$$= 2$$

**Answer:**

**2**

---

**Q1(c). Find the place value of the underlined digit 0 in 66,045.**

**Given:**

Number = 66,045

Underlined digit = 0

**Solution:**

The digit 0 is in the hundreds place.

Place Value =  $0 \times 100$

$$= 0$$

**Answer:**

**0**

---

**Q1(d). Find the place value of the underlined digit 9 in 92,169.**

**Given:**

Number = 92,169

Underlined digit = 9

**Solution:**

The digit 9 is in the ten-thousands place.

Place Value =  $9 \times 10,000$

= 90,000

**Answer:**

**90,000**

---

**Q2. Find the difference between the place value and face value of 8 in 86,543.**

**Given:**

Number = 86,543

Digit = 8

**To Find:**

Difference between place value and face value

**Solution:**

Face Value of 8 = 8

Place Value of 8 =  $8 \times 10,000$

= 80,000

Difference = Place Value – Face Value

= 80,000 – 8

= 79,992

**Answer:**

**79,992**

---

**Q3. Find the sum of the place values of digit 6 in 96,455 and 61,138.**

**Given:**

Numbers = 96,455 and 61,138

**Solution:**

In 96,455

Digit 6 is in the thousands place.

Place Value =  $6 \times 1000$

= 6,000

In 61,138

Digit 6 is in the ten-thousands place.

Place Value =  $6 \times 10,000$

= 60,000

Sum = 6,000 + 60,000

= 66,000

**Answer:**

**66,000**

---

**Practice Time 1.5**

**Q1. Form the smallest and the greatest 5-digit numbers using the digits 0, 3, 2, 8 and 5.**

**Given:**

Digits = 0, 3, 2, 8, 5

**To Find:**

Smallest and greatest 5-digit numbers

**Solution:****Smallest Number**

A 5-digit number cannot begin with 0.

Choose the smallest non-zero digit first.

Digits arranged in ascending order:

2, 0, 3, 5, 8

Smallest Number = 20,358

**Greatest Number**

Arrange digits in descending order.

8, 5, 3, 2, 0

Greatest Number = 85,320

**Answer:**

Smallest Number = **20,358**

Greatest Number = **85,320**

---

**Q2(a). Form the smallest and greatest numbers using 2, 0, 5, 8 and 1.**

**Given:**

Digits = 2, 0, 5, 8, 1

**Solution:**

Smallest Number:

1, 0, 2, 5, 8

= 10,258

Greatest Number:

8, 5, 2, 1, 0

= 85,210

**Answer:**

Smallest Number = **10,258**

Greatest Number = **85,210**

---

**Q2(b). Form the smallest and greatest numbers using 5, 8, 3, 9 and 2.**

**Given:**

Digits = 5, 8, 3, 9, 2

**Solution:**

Smallest Number:

2, 3, 5, 8, 9

= 23,589

Greatest Number:

9, 8, 5, 3, 2

= 98,532

**Answer:**

Smallest Number = **23,589**

Greatest Number = **98,532**

---

**Q2(c). Form the smallest and greatest numbers using 1, 2, 5, 4 and 8.**

**Given:**

Digits = 1, 2, 5, 4, 8

**Solution:**

Smallest Number:

1, 2, 4, 5, 8

= 12,458

Greatest Number:

8, 5, 4, 2, 1

= 85,421

**Answer:**

Smallest Number = **12,458**

Greatest Number = **85,421**

---

**Q2(d). Form the smallest and greatest numbers using 0, 9, 5, 1 and 2.**

**Given:**

Digits = 0, 9, 5, 1, 2

**Solution:**

Smallest Number:

1, 0, 2, 5, 9

= 10,259

Greatest Number:

9, 5, 2, 1, 0

= 95,210

**Answer:**

Smallest Number = **10,259**

Greatest Number = **95,210**

---

### **Practice Time 1.6**

**Q1(a). Write 47,236 in expanded form.**

**Given:**

Number = 47,236

**Solution:**

4 is in the ten-thousands place = 40,000

7 is in the thousands place = 7,000

2 is in the hundreds place = 200

3 is in the tens place = 30

6 is in the ones place = 6

Therefore,

$47,236 = 40,000 + 7,000 + 200 + 30 + 6$

**Answer:**

**$40,000 + 7,000 + 200 + 30 + 6$**

---

**Q1(b). Write 58,142 in expanded form.**

**Solution:**

58,142

$$= 50,000 + 8,000 + 100 + 40 + 2$$

**Answer:**

$$50,000 + 8,000 + 100 + 40 + 2$$

---

**Q1(c). Write 63,975 in expanded form.**

**Solution:**

63,975

$$= 60,000 + 3,000 + 900 + 70 + 5$$

**Answer:**

$$60,000 + 3,000 + 900 + 70 + 5$$

---

**Q1(d). Write 25,418 in expanded form.**

**Solution:**

25,418

$$= 20,000 + 5,000 + 400 + 10 + 8$$

**Answer:**

$$20,000 + 5,000 + 400 + 10 + 8$$

---

**Q2(a). Write the standard form of  $40,000 + 7,000 + 200 + 50 + 6$ .**

**Given:**

$$40,000 + 7,000 + 200 + 50 + 6$$

**Solution:**

$$= 47,000 + 200 + 50 + 6$$

$$= 47,256$$

**Answer:**

**47,256**

---

**Q2(b). Write the standard form of  $50,000 + 8,000 + 100 + 40 + 2$ .**

**Solution:**

$$= 58,000 + 100 + 40 + 2$$

$$= 58,142$$

**Answer:**

**58,142**

---

**Q2(c). Write the standard form of  $60,000 + 3,000 + 900 + 70 + 5$ .**

**Solution:**

$$= 63,000 + 900 + 70 + 5$$

$$= 63,975$$

**Answer:**

**63,975**

---

**Q2(d). Write the standard form of  $20,000 + 400 + 10 + 8$ .**

**Solution:**

$$= 20,000 + 400 + 10 + 8$$

$$= 20,418$$

**Answer:**

**20,418**

---

**Q2(e). Write the standard form of  $6,000 + 20 + 9$ .**

**Solution:**

$$= 6,000 + 20 + 9$$

$$= 6,029$$

**Answer:**

**6,029**

### **Practice Time 1.7**

**Q1(a). Find the predecessor and successor of 80,950.**

**Given:**

$$\text{Number} = 80,950$$

**To Find:**

Predecessor and Successor

**Solution:**

$$\text{Predecessor} = \text{Number} - 1$$

$$= 80,950 - 1$$

$$= 80,949$$

$$\text{Successor} = \text{Number} + 1$$

$$= 80,950 + 1$$

$$= 80,951$$

**Answer:**

**Number Predecessor Successor**

$$80,950 \quad 80,949 \quad 80,951$$

---

**Q1(b). Find the predecessor and successor of 27,600.**

**Solution:**

$$\text{Predecessor} = 27,600 - 1 = 27,599$$

$$\text{Successor} = 27,600 + 1 = 27,601$$

**Answer:**

**Number Predecessor Successor**

27,600 27,599 27,601

---

**Q1(c). Find the predecessor and successor of 36,859.**

**Solution:**

Predecessor = 36,858

Successor = 36,860

**Answer:**

**Number Predecessor Successor**

36,859 36,858 36,860

---

**Q1(d). Find the predecessor and successor of 25,418.**

**Solution:**

Predecessor = 25,417

Successor = 25,419

**Answer:**

**Number Predecessor Successor**

25,418 25,417 25,419

---

**Q1(e). Find the predecessor and successor of 45,980.**

**Solution:**

Predecessor = 45,979

Successor = 45,981

**Answer:**

**Number Predecessor Successor**

45,980 45,979 45,981

---

**Q1(f). Find the predecessor and successor of 70,908.**

**Solution:**

Predecessor = 70,907

Successor = 70,909

**Answer:**

**Number Predecessor Successor**

70,908    70,907    70,909

---

**Q1(g). Find the predecessor and successor of 40,540.**

**Solution:**

Predecessor = 40,539

Successor = 40,541

**Answer:**

**Number Predecessor Successor**

40,540    40,539    40,541

---

**Q1(h). Find the predecessor and successor of 98,730.**

**Solution:**

Predecessor = 98,729

Successor = 98,731

**Answer:**

**Number Predecessor Successor**

98,730    98,729    98,731

---

**Q2. Find the number whose predecessor is 3,847,563 and successor is 3,847,565.**

**Given:**

Predecessor = 3,847,563

Successor = 3,847,565

**To Find:**

The number

**Solution:**

The required number is one more than its predecessor.

Number = 3,847,563 + 1

= 3,847,564

Check:

Successor of 3,847,564

= 3,847,564 + 1

= 3,847,565 ✓

**Answer:**

**3,847,564**

---

**Q3.**

**Given:**

Cost of laptop = ₹35,499

**To Find:**

Next amount

**Solution:**

Next amount means successor.

Successor = 35,499 + 1

= 35,500

**Answer:**

**₹35,500**

---

**Practice Time 1.8****Q1(a). Round 3,427 to the nearest 10, 100 and 1000.****Given:**

Number = 3,427

**Solution:**

Nearest 10:

Ones digit = 7

 $7 \geq 5$ , so round up. $3,427 \rightarrow 3,430$ 

Nearest 100:

Tens digit = 2

 $2 < 5$ , so round down. $3,427 \rightarrow 3,400$ 

Nearest 1000:

Hundreds digit = 4

 $4 < 5$ , so round down. $3,427 \rightarrow 3,000$ **Answer:**

Nearest 10	Nearest 100	Nearest 1000
3,430	3,400	3,000

---

**Q1(b). Round 98,736 to the nearest 10, 100 and 1000.****Solution:**

Nearest 10 = 98,740

Nearest 100 = 98,700

Nearest 1000 = 99,000

**Answer:**

Nearest 10	Nearest 100	Nearest 1000
98,740	98,700	99,000

---

**Q1(c). Round 30,958 to the nearest 10, 100 and 1000.**

**Answer:**

Nearest 10	Nearest 100	Nearest 1000
30,960	31,000	31,000

---

**Q1(d). Round 35,769 to the nearest 10, 100 and 1000.**

**Answer:**

Nearest 10	Nearest 100	Nearest 1000
35,770	35,800	36,000

---

**Q1(e). Round 56,576 to the nearest 10, 100 and 1000.**

**Answer:**

Nearest 10	Nearest 100	Nearest 1000
56,580	56,600	57,000

---

**Q2(a). Estimate 6,874 to the nearest hundred.**

**Given:**

Number = 6,874

**Solution:**

Tens digit = 7

Since  $7 \geq 5$ , round up.

$6,874 \approx 6,900$

**Answer:**

**6,900**

---

**Q2(b). Estimate 43,490 to the nearest thousand.**

**Given:**

Number = 43,490

**Solution:**

Hundreds digit = 4

Since  $4 < 5$ , round down.

$43,490 \approx 43,000$

**Answer:**

**43,000**

---

**Q3. The price of a bicycle is ₹53,289. Estimate it to the nearest thousand.**

**Given:**

Price = ₹53,289

**Solution:**

Hundreds digit = 2

Since  $2 < 5$ , round down.

$53,289 \approx 53,000$

**Answer:**

**₹53,000**

---

**Q4. Estimate ₹1,214 to the nearest hundred.**

**Given:**

Amount = ₹1,214

**Solution:**

Tens digit = 1

Since  $1 < 5$ , round down.

$1,214 \approx 1,200$

**Answer:**

**₹1,200**

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### **Practice Time 1.9**

**Q1. A classroom has 32 desks and each desk has 4 chairs. How many chairs are there in total?**

**Given:**

Number of desks = 32

Chairs on each desk = 4

**To Find:**

Total number of chairs

**Solution:**

Total chairs = Number of desks  $\times$  Chairs per desk

=  $32 \times 4$

= 128

**Answer:**

There are **128 chairs** in total.

---

**Q2. A farmer plants 145 trees in one month. How many trees will he plant in 6 months?**

**Given:**

Trees planted in one month = 145

Number of months = 6

**To Find:**

Total trees planted

**Solution:**

$$\begin{aligned}\text{Total trees} &= 145 \times 6 \\ &= 870\end{aligned}$$

**Answer:**

The farmer will plant **870 trees** in 6 months.

---

**Q3. A train carries 280 passengers in one trip. How many passengers will travel in 5 trips?**

**Given:**

$$\text{Passengers in one trip} = 280$$

$$\text{Number of trips} = 5$$

**Solution:**

$$\begin{aligned}\text{Total passengers} &= 280 \times 5 \\ &= 1,400\end{aligned}$$

**Answer:**

**1,400 passengers** will travel in 5 trips.

---

**Q4. A book has 360 pages. A library has 85 such books. How many pages are there in all?**

**Given:**

$$\text{Pages in one book} = 360$$

$$\text{Number of books} = 85$$

**To Find:**

Total pages

**Solution:**

$$\begin{aligned}360 \times 85 \\ &= 360 \times (80 + 5) \\ &= (360 \times 80) + (360 \times 5)\end{aligned}$$

$$= 28,800 + 1,800$$

$$= 30,600$$

**Answer:**

There are **30,600 pages** in all.

---

**Q5. A factory produces 1,250 toys every day. How many toys will it produce in 30 days?**

**Given:**

Toys produced in one day = 1,250

Number of days = 30

**To Find:**

Total toys produced

**Solution:**

$$1,250 \times 30$$

$$= 37,500$$

**Answer:**

The factory will produce **37,500 toys** in 30 days.

**NCERT Corner**

**Let Us Do**

Q1(a) Complete the pattern.

456, 564, 678, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

Pattern: Add 114

$$678 + 114 = 792$$

$$792 + 114 = 906$$

$$906 + 114 = 1020$$

$$1020 + 114 = 1134$$

Answer: 792, 906, 1020, 1134

---

Q1(b) Complete the pattern.

1040, 3150, 4200, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

Pattern: Add 1050

$$4200 + 1050 = 5250$$

$$5250 + 1050 = 6300$$

$$6300 + 1050 = 7350$$

$$7350 + 1050 = 8400$$

Answer: 5250, 6300, 7350, 8400

---

Q1(c) Complete the pattern.

5501, 6401, 7301, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

Pattern: Add 900

Answer: 8201, 9101, 10001, 10901

---

Q1(d) Complete the pattern.

10100, 10200, 10300, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, 10900, \_\_\_\_

Pattern: Add 100

Answer: 10400, 10500, 10600, 10700, 10800, 11000

---

Q1(e) Complete the pattern.

10105, 10125, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

Pattern: Add 20

Answer: 10145, 10165, 10185, 10205, 10225

---

Q1(f) Complete the pattern.

10992, 10993, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

Pattern: Add 1

Answer: 10994, 10995, 10996, 10997, 10998

---

Q1(g) Complete the pattern.

10794, 10796, 10798, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

Pattern: Add 2

Answer: 10800, 10802, 10804, 10806

---

Q1(h) Complete the pattern.

73005, 72004, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

Pattern: Subtract 1001

Answer: 71003, 70002, 69001, 68000, 66999

---

Q1(i) Complete the pattern.

82350, 83350, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

Pattern: Add 1000

Answer: 84350, 85350, 86350, 87350, 88350

Q2. Fill in the blanks appropriately.

Number Number Name

8045 Eight thousand forty-five

7209 Seven thousand two hundred nine

10599 Ten thousand five hundred ninety-nine

10743 Ten thousand seven hundred forty-three

20869 Twenty thousand eight hundred sixty-nine

13579 Thirteen thousand five hundred seventy-nine

10010 Ten thousand ten

Number Number Name

56491 Fifty-six thousand four hundred ninety-one

45045 Forty-five thousand forty-five

39593 Thirty-nine thousand five hundred ninety-three

50005 Fifty thousand five

26050 Twenty-six thousand fifty

81200 Eighty-one thousand two hundred

90009 Ninety thousand nine

23230 Twenty-three thousand two hundred thirty

36001 Thirty-six thousand one

---

Q3. Arrange the numbers in increasing order.

Given:

40,347; 34,407; 70,473; 34,740; 73,404; 74,430; 47,340; 18,926

Increasing Order:

$18,926 < 34,407 < 34,740 < 40,347 < 47,340 < 70,473 < 73,404 < 74,430$

Answer:

18,926, 34,407, 34,740, 40,347, 47,340, 70,473, 73,404, 74,430

---

Q4. A student says 9,990 is greater than 49,014. Is the student correct?

Compare the numbers:

9,990 is a 4-digit number.

49,014 is a 5-digit number.

Any 5-digit number is always greater than any 4-digit number.

Answer: No, the student is incorrect. 49,014 is greater than 9,990.

---

Q5(a)

Number = 1,478

Interchange digits 1 and 8.

New number = 8,471

Answer: 8,471

---

Q5(b)(i)

Number = 10,593

Interchange digits 0 and 5.

New number = 15,093

Answer: 15,093

---

Q5(b)(ii)

Number = 10,593

Interchange digits 1 and 5.

New number = 50,193

Answer: 50,193

---

Q5(c)(i)

Number = 48,247

To make the smallest number, interchange 4 and 2.

New number = 28,447

Answer: 28,447

---

Q5(c)(ii)

Number = 48,247

To make the greatest number, interchange 4 and 8.

New number = 84,247

Answer: 84,247

---

### **Let Us Think**

Q1. Which two numbers round to the same hundred and the same thousand?

Numbers:

7,126; 7,835; 7,030; 6,999

Nearest Hundred:

7,126 → 7,100

7,835 → 7,800

7,030 → 7,000

6,999 → 7,000

Nearest Thousand:

7,126 → 7,000

7,835 → 8,000

7,030 → 7,000

6,999 → 7,000

Answer: 7,030 and 6,999

---

Q2(a)

Write two numbers having the same nearest ten.

Example:

43 and 44

Both round to 40.

Answer: 43 and 44

---

Q2(b)

Write two numbers having the same nearest hundred.

Example:

124 and 126

Both round to 100.

Answer: 124 and 126

---

Q2(c)

Write two numbers having the same nearest thousand.

Example:

1210 and 1480

Both round to 1000.

Answer: 1210 and 1480

---

Q3(a)

Same nearest ten and same nearest hundred.

Example:

241 and 244

Nearest 10 = 240

Nearest 100 = 200

Answer: 241 and 244

---

Q3(b)

Same nearest hundred and same nearest thousand.

Example:

1230 and 1260

Nearest 100 = 1200

Nearest 1000 = 1000

Answer: 1230 and 1260

---

Q3(c)

Same nearest ten, hundred and thousand.

Example:

1021 and 1024

Nearest 10 = 1020

Nearest 100 = 1000

Nearest 1000 = 1000

Answer: 1021 and 1024

### **Let Us Do**

Q1. A cyclist covers 15 km in one hour. How far will the cyclist travel in 4 hours?

Given:

Distance covered in 1 hour = 15 km

Time = 4 hours

To Find:

Total distance travelled

Solution:

Distance = Distance in 1 hour  $\times$  Number of hours

=  $15 \times 4$

= 60 km

Answer:

60 km

---

Q2. There are 461 girls and 439 boys in a school. How many vehicles are needed if each vehicle carries the given number of students?

Given:

Girls = 461

Boys = 439

Total students =  $461 + 439 = 900$

(a) Bicycle (2 students)

$$900 \div 2 = 450$$

Answer: 450 bicycles

(b) Autorickshaw (3 students)

$$900 \div 3 = 300$$

Answer: 300 autorickshaws

(c) Car (4 students)

$$900 \div 4 = 225$$

Answer: 225 cars

(d) Big Car (6 students)

$$900 \div 6 = 150$$

Answer: 150 big cars

(e) Tempo Traveller (10 students)

$$900 \div 10 = 90$$

Answer: 90 tempo travellers

(f) Boat (20 students)

$$900 \div 20 = 45$$

Answer: 45 boats

(g) Minibus (25 students)

$$900 \div 25 = 36$$

Answer: 36 minibuses

(h) Aeroplane (180 students)

$$900 \div 180 = 5$$

Answer: 5 aeroplanes

---

Q3. Write five numbers between 23,568 and 24,234.

Answer:

23,569, 23,600, 23,700, 24,000, 24,200

---

Q4. Write five numbers greater than 38,125 but less than 38,600.

Answer:

38,126, 38,250, 38,350, 38,500, 38,599

---

Q5. Ravi's car has travelled 56,987 km and Sheetal's car has travelled 67,543 km. Whose car has travelled more?

Given:

Ravi = 56,987 km

Sheetal = 67,543 km

Solution:

$67,543 > 56,987$

Answer:

Sheetal's car has travelled more distance.

**Q6. Arrange the prices of the bikes in ascending order.**

**Given:**

₹90,000, ₹89,999, ₹94,983, ₹49,900, ₹93,743, ₹39,999

**Solution:**

Ascending order means arranging from the smallest to the greatest.

$₹39,999 < ₹49,900 < ₹89,999 < ₹90,000 < ₹93,743 < ₹94,983$

**Answer:**

**₹39,999, ₹49,900, ₹89,999, ₹90,000, ₹93,743, ₹94,983**

---

**Q7. Arrange the populations of the towns in descending order.**

**Given:**

<b>Town</b>	<b>Population</b>
Town 1	65,232
Town 2	53,231
Town 3	56,380
Town 4	51,336
Town 5	45,858
Town 6	66,540

**Solution:**

Descending order means arranging from the greatest to the smallest.

$$66,540 > 65,232 > 56,380 > 53,231 > 51,336 > 45,858$$

**Answer:**

**66,540, 65,232, 56,380, 53,231, 51,336, 45,858**

or

**Town 6, Town 1, Town 3, Town 2, Town 4, Town 5**

---

**Q8. Write the numbers between 42,750 and 53,500 that have 0 in the ones, tens and hundreds places.**

**Solution:**

The ones, tens and hundreds digits must all be 0.

Therefore, the numbers must be exact thousands between 42,750 and 53,500.

**Answer:**

43,000

44,000

45,000

46,000

47,000

48,000

49,000

50,000

51,000

52,000

53,000

**Q9. Write the expanded form of the following numbers.**

**(a) 783**

$$783 = 700 + 80 + 3$$

**Answer:**  $700 + 80 + 3$

---

**(b) 8,062**

$$8,062 = 8,000 + 60 + 2$$

**Answer:**  $8,000 + 60 + 2$

---

**(c) 9,980**

$$9,980 = 9,000 + 900 + 80$$

**Answer:**  $9,000 + 900 + 80$

---

**(d) 10,304**

$$10,304 = 10,000 + 300 + 4$$

**Answer:**  $10,000 + 300 + 4$

---

**(e) 23,004**

$$23,004 = 20,000 + 3,000 + 4$$

**Answer:**  $20,000 + 3,000 + 4$

---

**(f) 70,405**

$$70,405 = 70,000 + 400 + 5$$

**Answer:**  $70,000 + 400 + 5$

---

**Q10. Rewrite the numbers using the given place values.**

**(a) 68**

Given:

$$68 = 6 \text{ Tens} + 8 \text{ Ones}$$

Regroup one ten into ten ones.

$$68 = 5 \text{ Tens} + 18 \text{ Ones}$$

**Answer:**

**5 Tens + 18 Ones**

---

**(b) 607**

Given:

$$607 = 6 \text{ Hundreds} + 0 \text{ Tens} + 7 \text{ Ones}$$

Regroup 2 hundreds into ones.

$$607 = 4 \text{ Hundreds} + 207 \text{ Ones}$$

**Answer:**

**4 Hundreds + 207 Ones**

---

**(c) 5,621**

Given:

$$5,621 = 5 \text{ Thousands} + 6 \text{ Hundreds} + 2 \text{ Tens} + 1 \text{ One}$$

Regroup 1 thousand as 10 hundreds.

= 4 Thousands + 16 Hundreds + 2 Tens + 1 One

**Answer:**

**4 Thousands + 16 Hundreds + 2 Tens + 1 One**

---

**(d) 7,069**

Given:

7,069 = 7 Thousands + 0 Hundreds + 6 Tens + 9 Ones

Regroup 2 thousands as 20 hundreds.

= 5 Thousands + 20 Hundreds + 69 Ones

**Answer:**

**5 Thousands + 20 Hundreds + 69 Ones**

---

**(e) 37,608**

Given:

37,608 = 3 Ten Thousands + 7 Thousands + 6 Hundreds + 8 Ones

Regroup 1 Ten Thousand as 10 Thousands.

= 2 Ten Thousands + 17 Thousands + 6 Hundreds + 8 Ones

**Answer:**

**2 Ten Thousands + 17 Thousands + 6 Hundreds + 8 Ones**

---

**(f) 43,001**

Given:

43,001 = 4 Ten Thousands + 3 Thousands + 1 One

Regroup 1 Ten Thousand as 10 Thousands.

= 3 Ten Thousands + 13 Thousands + 1 One

**Answer:**

**3 Ten Thousands + 13 Thousands + 1 One**

---

**Q11.**

**Given:**

Amount = ₹7,934

---

**(a) How many ₹10 notes can be made?**

$$7,934 \div 10 = 793 \text{ remainder } 4$$

**Answer:**

**793 notes of ₹10**

---

**(b) How many ₹100 notes can be made?**

$$7,934 \div 100 = 79 \text{ remainder } 34$$

**Answer:**

**79 notes of ₹100**

---

**(c) How many thousands are there in ₹7,934?**

$$7,934 \div 1000 = 7 \text{ remainder } 934$$

**Answer:**

**7 thousands**

---

**(d) How many ₹500 notes can be made?**

$$7,934 \div 500 = 15 \text{ remainder } 434$$

**Answer:**

**15 notes of ₹500**

---

**(e) How many ₹10 notes can be made from ₹65,342?**

$$65,342 \div 10 = 6,534 \text{ remainder } 2$$

**Answer:**

**6,534 notes of ₹10**

---

**(f) How many ₹100 notes can be made from ₹65,342?**

$$65,342 \div 100 = 653 \text{ remainder } 42$$

**Answer:**

**653 notes of ₹100**

### **Exam Time**

#### **A. Multiple Choice Questions (MCQs)**

**1. Which of the following correctly shows 78,425 in expanded form?**

$$78,425 = 70,000 + 8,000 + 400 + 20 + 5$$

**Answer: (a) 70,000 + 8,000 + 400 + 20 + 5**

---

**2. 45,463 rounded to the nearest hundred is:**

$$\text{Tens digit} = 6 (\geq 5)$$

So, increase hundreds digit by 1.

$$45,463 \approx 45,500$$

**Answer: (a) 45,500**

---

**3. The place value of 7 in 57,849 is:**

7 is in the thousands place.

$$\text{Place value} = 7 \times 1000$$

$$= 7,000$$

**Answer: (c) 7,000**

---

**4. Fifty-two thousand four hundred forty-eight is:**

$$= 52,000 + 400 + 48$$

$$= 52,448$$

**Answer: (a) 52,448**

---

**5. The largest 5-digit number ending in 5 is:**

99,995

**Answer: (a) 99,995**

---

**B. Fill in the Blanks**

**1.**

42,000 has **3** zeroes.

**Answer: 3**

---

**2.**

85,426 rounded to nearest 1000

Hundreds digit = 4 (<5)

$$= 85,000$$

**Answer: 85,000**

---

**3.**

84 thousand = **84,000**

**Answer: 84,000**

---

**4.**

$$50,000 + 1,200 = 51,200$$

**Answer: 51,200**

---

5.

10,000 is read as **Ten thousand**

**Answer: Ten thousand**

---

**C. Write True or False**

1.

The smallest 5-digit number is 10,000.

**True**

---

2.

The greatest 5-digit number is 99,999.

**True**

---

3.

The place value of 6 in 46,372 is 6,000.

6 is in thousands place.

**True**

---

4.

$52,481 = 50,000 + 2,000 + 400 + 80 + 1$

**True**

---

5.

The predecessor of 50,000 is 49,999.

**True**

---

**D. Very Short Answer Type Questions**

**1. Write the numerals for:**

**(a)**

Eighty-five thousand one hundred eighty

**Answer: 85,180**

---

**(b)**

Forty-three thousand seven hundred twenty-five

**Answer: 43,725**

---

**(c)**

Fifty-four thousand six hundred ten

**Answer: 54,610**

---

**(d)**

Ninety-seven thousand forty-one

**Answer: 97,041**

---

**2. Write the largest number using the following digits.**

**(a) 5, 9, 6, 2, 8**

Arrange in descending order:

9, 8, 6, 5, 2

**Answer: 98,652**

---

**(b) 6, 0, 3, 5, 7**

Arrange in descending order:

7, 6, 5, 3, 0

**Answer: 76,530**

---

**3. Write the place value of the underlined digit.**

**(a) 43825**

Underlined digit = 8

Place value = 800

**Answer: 800**

---

**(b) 53127**

Underlined digit = 3

Place value = 3,000

**Answer: 3,000**

---

**(c) 64829**

Underlined digit = 4

Place value = 400

**Answer: 400**

---

**(d) 92754**

Underlined digit = 2

Place value = 20

**Answer: 20**

---

**4. Compare 53,672 and 53,762.**

$53,672 < 53,762$

**Answer:  $53,672 < 53,762$**

---

**5. What is the sum of the place values of 7 in 47,578?**

First 7 = 7,000

Second 7 = 70

Sum = 7,000 + 70

= 7,070

**Answer: 7,070**

---

## **E. Short Answer Type Questions**

### **1. Compare 89,845 and 89,799.**

**Solution:**

89,845 > 89,799

**Answer:**

**89,845 > 89,799**

---

### **2. Arrange in ascending order.**

Given:

58,432; 58,423; 58,324; 58,342

**Solution:**

58,324 < 58,342 < 58,423 < 58,432

**Answer:**

**58,324, 58,342, 58,423, 58,432**

---

### **3. Arrange in descending order.**

Given:

72,518; 71,825; 72,185; 71,952

**Solution:**

72,518 > 72,185 > 71,952 > 71,825

**Answer:**

72,518, 72,185, 71,952, 71,825

---

**4. Find the predecessor and successor of 45,000.**

**Given:**

Number = 45,000

**Solution:**

Predecessor =  $45,000 - 1 = 44,999$

Successor =  $45,000 + 1 = 45,001$

**Answer:**

**Predecessor = 44,999**

**Successor = 45,001**

---

**5. Round off 46,783.**

**(a) Nearest Ten**

Ones digit = 3 ( $<5$ )

= 46,780

**(b) Nearest Hundred**

Tens digit = 8 ( $\geq 5$ )

= 46,800

**(c) Nearest Thousand**

Hundreds digit = 7 ( $\geq 5$ )

= 47,000

**Answer:**

**Nearest Ten = 46,780**

**Nearest Hundred = 46,800**

**Nearest Thousand = 47,000**

---

## **F. Long Answer Type Questions**

**1. Form the largest and smallest 5-digit numbers using digits 2, 9, 5, 0, 7 without repetition.**

### **Largest Number**

Arrange digits in descending order:

9, 7, 5, 2, 0

= 97,520

### **Smallest Number**

Smallest non-zero digit first:

2, 0, 5, 7, 9

= 20,579

**Answer:**

**Largest Number = 97,520**

**Smallest Number = 20,579**

---

**2. Write the expanded form of 84,230.**

84,230

= 80,000 + 4,000 + 200 + 30

**Answer:**

**80,000 + 4,000 + 200 + 30**

---

**3. Write the difference between face value and place value with one example each.**

### **Face Value**

The digit itself, irrespective of its position.

Example:

Face value of 5 in 58,742 = 5

### **Place Value**

Value according to its position.

Example:

Place value of 5 in 58,742 = 50,000

**Answer:**

Face value is the value of the digit itself, while place value depends on the position of the digit in the number.

---

**4. A train travelled 28,645 km in the first year and 35,470 km in the second year. Find the total distance travelled.**

**Given:**

First year = 28,645 km

Second year = 35,470 km

**Solution:**

$$28,645 + 35,470$$

$$= 64,115 \text{ km}$$

**Answer:**

**64,115 km**

---

**5. Write the numbers between 52,490 and 52,500 and arrange them in descending order.**

Numbers:

52,491, 52,492, 52,493, 52,494, 52,495, 52,496, 52,497, 52,498, 52,499

**Descending Order:**

$52,499 > 52,498 > 52,497 > 52,496 > 52,495 > 52,494 > 52,493 > 52,492 > 52,491$

**Answer:**

**52,499, 52,498, 52,497, 52,496, 52,495, 52,494, 52,493, 52,492, 52,491**

---

**Competency-Based Questions**

### A. Assertion–Reason

1. **(d)** A is false but R is true.
2. **(b)** Both A and R are true but R is not the correct explanation.
3. **(a)** Both A and R are true and R is the correct explanation.

### B. Case Study

Population Table:

City	Population
A	84,752
B	78,965
C	89,347
D	88,215

#### 1. Ascending Order

$$78,965 < 84,752 < 88,215 < 89,347$$

**Answer:** B, A, D, C

---

#### 2. Difference between most and least populated cities

$$89,347 - 78,965 = 10,382$$

**Answer:** 10,382

---

#### 3. Population rounded to nearest thousand

$$A = 85,000$$

$$B = 79,000$$

$$C = 89,000$$

$$D = 88,000$$

**Answer:** A–85,000, B–79,000, C–89,000, D–88,000

---

## Maths Booster (Crossword)

### Down

1. Smallest 4-digit number → **1000**
2. Two hundred sixth numeral → **206**
3. After 679 → **680**
4. Predecessor of 334 → **333**
5. Before 500 → **499**

### Across

1. Successor of 1099 → **1100**
2. Smallest 4-digit number of 5,8,3,0 → **3058**
3. Between 760 and 762 → **761**
4. Greatest 4-digit number of 5,8,3,0 → **8530**
5. Greatest 3-digit number → **999**

## Ch – 2: Fractions

### PRACTICE TIME 2.1

**Q1. Identify the pairs of equivalent fractions.**

**(a)  $\frac{1}{2}$ ,  $\frac{2}{4}$ ,  $\frac{3}{6}$ ,  $\frac{2}{5}$**

**Solution:**

$$\frac{2}{4} = \frac{1}{2}$$

$$\frac{3}{6} = \frac{1}{2}$$

Therefore,

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$$

Answer: ( $\frac{1}{2}$ ,  $\frac{2}{4}$ ,  $\frac{3}{6}$ )

---

**(b)  $\frac{3}{9}$ ,  $\frac{2}{3}$ ,  $\frac{1}{3}$ ,  $\frac{4}{6}$**

**Solution:**

$$3/9 = 1/3$$

$$4/6 = 2/3$$

Therefore,

Answer:

**3/9 and 1/3**

**2/3 and 4/6**

---

**(c) 2/5, 4/10, 3/8, 6/15**

**Solution:**

$$4/10 = 2/5$$

$$6/15 = 2/5$$

Therefore,

Answer:

$$2/5 = 4/10 = 6/15$$

---

**(d) 1/4, 2/6, 3/12, 2/8**

**Solution:**

$$3/12 = 1/4$$

$$2/8 = 1/4$$

Therefore,

Answer:

$$1/4 = 3/12 = 2/8$$

---

**Q2. Identify the greater fraction.**

**(a) 2/9 and 7/9**

**Solution:**

Both fractions have the same denominator.

Compare numerators:

$$7 > 2$$

Therefore,

$$7/9 > 2/9$$

Greater fraction = **7/9**

---

**(b) 10/11 and 11/12**

**Solution:**

Cross multiply:

$$10 \times 12 = 120$$

$$11 \times 11 = 121$$

Since  $121 > 120$ ,

$$11/12 > 10/11$$

Greater fraction = **11/12**

---

**(c) 1/13 and 1/7**

**Solution:**

Both fractions have the same numerator.

Smaller denominator gives the greater fraction.

$$7 < 13$$

Therefore,

$$1/7 > 1/13$$

Greater fraction = **1/7**

---

**(d) 4/15 and 2/6**

**Solution:**

Cross multiply:

$$4 \times 6 = 24$$

$$2 \times 15 = 30$$

Since  $30 > 24$ ,

$$2/6 > 4/15$$

Greater fraction = **2/6**

---

**Q3. Write >, < or =**

**(a)  $1/19 \square 1/79$**

Same numerator.

$$19 < 79$$

Therefore,

$$1/19 > 1/79$$

Answer: >

---

**(b)  $3/4 \square 9/12$**

$$3/4 = (3 \times 3)/(4 \times 3)$$

$$= 9/12$$

Therefore,

$$3/4 = 9/12$$

Answer: =

---

**(c)  $5/12 \square 17/30$**

Cross multiply:

$$5 \times 30 = 150$$

$$17 \times 12 = 204$$

$$150 < 204$$

Therefore,

$$5/12 < 17/30$$

Answer: <

---

**(d)  $3/13$  □  $4/15$**

Cross multiply:

$$3 \times 15 = 45$$

$$4 \times 13 = 52$$

$$45 < 52$$

Therefore,

$$3/13 < 4/15$$

Answer: <

---

**Q4. Arrange the fractions in ascending order.**

**(a)  $5/6$ ,  $4/9$ ,  $1/4$**

**Solution:**

$$\text{LCM of } 6, 9 \text{ and } 4 = 36$$

$$5/6 = 30/36$$

$$4/9 = 16/36$$

$$1/4 = 9/36$$

Ascending order:

$$9/36 < 16/36 < 30/36$$

Therefore,

$$1/4 < 4/9 < 5/6$$

---

**(b)  $6/7$ ,  $1/4$ ,  $3/14$**

**Solution:**

$$\text{LCM} = 28$$

$$6/7 = 24/28$$

$$1/4 = 7/28$$

$$3/14 = 6/28$$

Ascending order:

$$6/28 < 7/28 < 24/28$$

Therefore,

$$\mathbf{3/14 < 1/4 < 6/7}$$

---

**(c) 1/8, 7/12, 2/9, 1/6**

**Solution:**

$$\text{LCM} = 72$$

$$1/8 = 9/72$$

$$7/12 = 42/72$$

$$2/9 = 16/72$$

$$1/6 = 12/72$$

Ascending order:

$$9/72 < 12/72 < 16/72 < 42/72$$

Therefore,

$$\mathbf{1/8 < 1/6 < 2/9 < 7/12}$$

---

**(d) 3/5, 7/15, 9/20, 3/10**

**Solution:**

$$\text{LCM} = 60$$

$$3/5 = 36/60$$

$$7/15 = 28/60$$

$$9/20 = 27/60$$

$$3/10 = 18/60$$

Ascending order:

$$18/60 < 27/60 < 28/60 < 36/60$$

Therefore,

$$\mathbf{3/10 < 9/20 < 7/15 < 3/5}$$

---

**Q5. Arrange the fractions in descending order.**

**(a)  $17/20, 7/15, 2/9, 9/10$**

**Solution:**

$$\text{LCM} = 180$$

$$17/20 = 153/180$$

$$7/15 = 84/180$$

$$2/9 = 40/180$$

$$9/10 = 162/180$$

Descending order:

$$162/180 > 153/180 > 84/180 > 40/180$$

Therefore,

$$\mathbf{9/10 > 17/20 > 7/15 > 2/9}$$

---

**(b)  $2/3, 1/2, 5/6, 7/9$**

**Solution:**

$$\text{LCM} = 18$$

$$2/3 = 12/18$$

$$1/2 = 9/18$$

$$5/6 = 15/18$$

$$7/9 = 14/18$$

Descending order:

$$15/18 > 14/18 > 12/18 > 9/18$$

Therefore,

$$5/6 > 7/9 > 2/3 > 1/2$$

---

**(c)  $3/4, 7/8, 5/12, 11/24$**

**Solution:**

$$\text{LCM} = 24$$

$$3/4 = 18/24$$

$$7/8 = 21/24$$

$$5/12 = 10/24$$

$$11/24 = 11/24$$

Descending order:

$$21/24 > 18/24 > 11/24 > 10/24$$

Therefore,

$$7/8 > 3/4 > 11/24 > 5/12$$

---

**Q6. Reduce the following fractions to the simplest form.**

**(a)  $30/42$**

$$\text{HCF of } 30 \text{ and } 42 = 6$$

$$30 \div 6 = 5$$

$$42 \div 6 = 7$$

Therefore,

$$30/42 = 5/7$$

Answer:  $5/7$

---

**(b)  $36/81$**

$$\text{HCF} = 9$$

$$36 \div 9 = 4$$

$$81 \div 9 = 9$$

Therefore,

$$36/81 = 4/9$$

Answer: **4/9**

---

**(c) 35/49**

$$\text{HCF} = 7$$

$$35 \div 7 = 5$$

$$49 \div 7 = 7$$

Therefore,

$$35/49 = 5/7$$

Answer: **5/7**

---

**(d) 96/144**

$$\text{HCF} = 48$$

$$96 \div 48 = 2$$

$$144 \div 48 = 3$$

Therefore,

$$96/144 = 2/3$$

Answer: **2/3**

---

**Q7 (Figures)**

**Do it yourself**

This question requires shading in the diagrams

**PRACTICE TIME 2.2**

**Q1. Add or Subtract the following.**

---

**(a)  $\frac{3}{5} + \frac{1}{5}$**

**Solution:**

The denominators are the same.

Add the numerators.

$$= (3 + 1)/5$$

$$= \frac{4}{5}$$

**Answer =  $\frac{4}{5}$**

---

**(b)  $\frac{2}{9} + \frac{4}{9}$**

**Solution:**

The denominators are the same.

$$= (2 + 4)/9$$

$$= \frac{6}{9}$$

Simplify:

$$= \frac{2}{3}$$

**Answer =  $\frac{2}{3}$**

---

**(c)  $\frac{7}{9} - \frac{4}{9}$**

**Solution:**

The denominators are the same.

$$= (7 - 4)/9$$

$$= \frac{3}{9}$$

$$= \frac{1}{3}$$

**Answer =  $\frac{1}{3}$**

---

**(d)  $4/11 - 3/11$**

**Solution:**

The denominators are the same.

$$= (4 - 3)/11$$

$$= 1/11$$

**Answer =  $1/11$**

---

Q2. Solve these.

---

**(a)  $5/9 + 7/12 + 1/3$**

**Solution:**

LCM of 9, 12 and 3 = 36

$$5/9 = 20/36$$

$$7/12 = 21/36$$

$$1/3 = 12/36$$

$$= 20/36 + 21/36 + 12/36$$

$$= 53/36$$

$$= 1 \frac{17}{36}$$

**Answer =  $1 \frac{17}{36}$**

---

**(b)  $1 \frac{5}{12} + \frac{4}{9} + 3 \frac{1}{6}$**

**Solution:**

LCM of 12, 9 and 6 = 36

$$1 \frac{5}{12} = 1 \frac{15}{36}$$

$$\frac{4}{9} = \frac{16}{36}$$

$$3 \frac{1}{6} = 3 \frac{6}{36}$$

$$\begin{aligned}
&= 1\frac{15}{36} + \frac{16}{36} + 3\frac{6}{36} \\
&= (1 + 3) + \frac{15 + 16 + 6}{36} \\
&= 4 + \frac{37}{36} \\
&= 4 + 1\frac{1}{36} \\
&= 5\frac{1}{36}
\end{aligned}$$

Answer =  $5\frac{1}{36}$

(c)  $\frac{3}{5} + \frac{7}{10} - \frac{1}{2}$

**Solution:**

LCM of 5, 10 and 2 = 10

$$\begin{aligned}
\frac{3}{5} &= \frac{6}{10} \\
\frac{7}{10} &= \frac{7}{10} \\
\frac{1}{2} &= \frac{5}{10} \\
&= \frac{6}{10} + \frac{7}{10} - \frac{5}{10} \\
&= \frac{13}{10} - \frac{5}{10} \\
&= \frac{8}{10} \\
&= \frac{4}{5}
\end{aligned}$$

Answer =  $\frac{4}{5}$

---

(d)  $\frac{4}{9} - \frac{5}{12} + \frac{1}{4}$

**Solution:**

LCM of 9, 12 and 4 = 36

$$\begin{aligned}
\frac{4}{9} &= \frac{16}{36} \\
\frac{5}{12} &= \frac{15}{36} \\
\frac{1}{4} &= \frac{9}{36} \\
&= \frac{16}{36} - \frac{15}{36} + \frac{9}{36} \\
&= \frac{1}{36} + \frac{9}{36} \\
&= \frac{10}{36} \\
&= \frac{5}{18}
\end{aligned}$$

**Answer** =  $\frac{5}{18}$

---

(e)  $\frac{3}{5} + \frac{7}{10} - \frac{1}{2}$

**Solution:**

LCM of 5, 10 and 2 = 10

$$\begin{aligned}
\frac{3}{5} &= \frac{6}{10} \\
\frac{7}{10} &= \frac{7}{10} \\
\frac{1}{2} &= \frac{5}{10} \\
&= \frac{6}{10} + \frac{7}{10} - \frac{5}{10} \\
&= \frac{13}{10} - \frac{5}{10} \\
&= \frac{8}{10} \\
&= \frac{4}{5}
\end{aligned}$$

**Answer** =  $\frac{4}{5}$

$$(f) 6\frac{5}{9} - 4\frac{1}{3} - 2\frac{1}{6}$$

Solution:

LCM of 9, 3 and 6 = 18

$$\begin{aligned}6\frac{5}{9} &= 6\frac{10}{18} \\4\frac{1}{3} &= 4\frac{6}{18} \\2\frac{1}{6} &= 2\frac{3}{18} \\&= 6\frac{10}{18} - 4\frac{6}{18} - 2\frac{3}{18} \\&= (6 - 4 - 2) + \frac{10 - 6 - 3}{18} \\&= 0 + \frac{1}{18} \\&= \frac{1}{18}\end{aligned}$$

$$\text{Answer} = \frac{1}{18}$$

---

Q3. What should be added to  $5\frac{3}{4}$  to get 8?

Solution:

Required number

$$\begin{aligned}&= 8 - 5\frac{3}{4} \\&= 7\frac{4}{4} - 5\frac{3}{4} \\&= 2\frac{1}{4}\end{aligned}$$

$$\text{Answer} = 2\frac{1}{4}$$

---

Q4. Puneet bought 25 burgers for guests. At the end,  $3\frac{1}{4}$  burgers were left. Find the quantity of burgers eaten.

Solution:

Burgers eaten

$$\begin{aligned} &= 25 - 3\frac{1}{4} \\ &= 24\frac{4}{4} - 3\frac{1}{4} \\ &= 21\frac{3}{4} \end{aligned}$$

Answer =  $21\frac{3}{4}$  burgers

### PRACTICE TIME 2.3

1. Multiply these:

(a)  $\frac{5}{6}$  of

(i)  $\frac{18}{35}$

$$\frac{5}{6} \times \frac{18}{35}$$

Cancelling:

$$\begin{aligned} &\frac{5}{\cancel{6}} \times \frac{\cancel{18}^3}{35} \\ &\frac{\cancel{5}^1 \times 3}{\cancel{35}^7 \times 7} \\ &= \frac{3}{7} \end{aligned}$$

Answer =  $\frac{3}{7}$

---

(ii)  $\frac{24}{15}$

$$\frac{5}{6} \times \frac{24}{15}$$

**Cancelling:**

$$\begin{aligned} & \frac{5}{\cancel{6}^1} \times \frac{\cancel{24}^4}{15} \\ & \frac{5^1 \times 4}{\cancel{15}^3 \times 3} \\ & = \frac{4}{3} \\ & = 1\frac{1}{3} \end{aligned}$$

**Answer =  $1\frac{1}{3}$**

---

**(b)  $\frac{2}{7}$  of**

**(i)  $\frac{42}{14}$**

$$\frac{2}{7} \times \frac{42}{14}$$

**Cancelling:**

$$\begin{aligned} & \frac{2}{7} \times \frac{6}{2} \\ & = \frac{12}{14} \\ & = \frac{6}{7} \end{aligned}$$

**Answer =  $\frac{6}{7}$**

---

**(ii)  $\frac{7}{8}$**

$$\frac{2}{7} \times \frac{7}{8}$$

**Cancelling:**

$$= \frac{2}{8}$$
$$= \frac{1}{4}$$

**Answer =  $\frac{1}{4}$**

---

**(c)  $\frac{3}{4}$  of**

**(i)  $\frac{56}{27}$**

$$\frac{3}{4} \times \frac{56}{27}$$

**Cancelling:**

$$\frac{1}{4} \times \frac{56}{9}$$
$$= \frac{14}{9}$$
$$= 1\frac{5}{9}$$

**Answer =  $1\frac{5}{9}$**

---

**(ii)  $\frac{12}{15}$**

$$\frac{3}{4} \times \frac{12}{15}$$

**Cancelling:**

$$\begin{aligned} & \frac{3}{1} \times \frac{3}{15} \\ &= \frac{9}{15} \\ &= \frac{3}{5} \end{aligned}$$

**Answer** =  $\frac{3}{5}$

---

**(d)**  $\frac{7}{8}$  of

**(i)**  $\frac{48}{49}$

$$\frac{7}{8} \times \frac{48}{49}$$

**Cancelling:**

$$\begin{aligned} & \frac{1}{8} \times \frac{48}{7} \\ &= \frac{48}{56} \\ &= \frac{6}{7} \end{aligned}$$

**Answer** =  $\frac{6}{7}$

---

**(ii)**  $\frac{16}{21}$

$$\frac{7}{8} \times \frac{16}{21}$$

**Cancelling:**

$$\begin{aligned} & \frac{1}{8} \times \frac{16}{3} \\ &= \frac{16}{24} \end{aligned}$$

$$= \frac{2}{3}$$

$$\text{Answer} = \frac{2}{3}$$

---

**Q2. Multiply and write the following in their simplest form.**

---

**(a)  $5/7 \times 35/40$**

**Solution:**

$$\frac{5}{7} \times \frac{35}{40}$$

Cancel:

$$35 \div 7 = 5$$

$$40 \div 5 = 8$$

$$\begin{aligned} &= \frac{1 \times 5}{1 \times 8} \\ &= \frac{5}{8} \end{aligned}$$

$$\text{Answer} = 5/8$$

---

**(b)  $12/11 \times 88/72$**

**Solution:**

Cancel:

$$88 \div 11 = 8$$

$$72 \div 12 = 6$$

$$\begin{aligned} &= \frac{1 \times 8}{1 \times 6} \\ &= \frac{8}{6} \end{aligned}$$

$$= \frac{4}{3}$$
$$= 1\frac{1}{3}$$

**Answer =  $1\frac{1}{3}$**

---

**(c)  $8\frac{2}{5} \times 2\frac{1}{2}$**

**Solution:**

Convert mixed fractions:

$$8\frac{2}{5} = \frac{42}{5}$$
$$2\frac{1}{2} = \frac{5}{2}$$

Multiply:

$$\frac{42}{5} \times \frac{5}{2}$$

Cancel 5

$$= 42 \times \frac{1}{2}$$
$$= 21$$

**Answer = 21**

---

**Q3. Insert appropriate inequality sign.**

---

**(a)**

$$\frac{8}{9} \text{ of } \frac{3}{4} \square \frac{1}{6} \text{ of } \frac{12}{5}$$

Left side:

$$\frac{8}{9} \times \frac{3}{4} = \frac{2}{3}$$

Right side:

$$\frac{1}{6} \times \frac{12}{5} = \frac{2}{5}$$

Compare:

$$\frac{2}{3} > \frac{2}{5}$$

**Answer = >**

---

**(b)**

$$\frac{7}{9} \text{ of } \frac{1}{14} \square \frac{6}{11} \text{ of } \frac{5}{8}$$

Left side:

$$\frac{7}{9} \times \frac{1}{14} = \frac{1}{18}$$

Right side:

$$\frac{6}{11} \times \frac{5}{8} = \frac{15}{44}$$
$$\frac{1}{18} < \frac{15}{44}$$

**Answer = <**

---

**Q4. Match the given figures.**

**Answers:**

1 → (c)

2 → (a)

3 → (b)

**Q5. Multiply and write the following in their simplest form.**

---

**(a)  $4/7 \times ₹63$**

**Solution:**

$$\begin{aligned}\frac{4}{7} \times 63 \\ &= 4 \times 9 \\ &= 36\end{aligned}$$

**Answer = ₹36**

---

**(b)  $3/8 \times 56 \text{ km}$**

**Solution:**

$$\begin{aligned}\frac{3}{8} \times 56 \\ &= 3 \times 7 \\ &= 21\end{aligned}$$

**Answer = 21 km**

---

**(c)  $8/5 \times 90 \text{ paise}$**

**Solution:**

$$\begin{aligned}\frac{8}{5} \times 90 \\ &= 8 \times 18 \\ &= 144\end{aligned}$$

**Answer = 144 paise**

---

**(d)  $\frac{1}{10} \times 550$  mL**

**Solution:**

$$\begin{aligned}\frac{1}{10} \times 550 \\ &= 55\end{aligned}$$

**Answer = 55 mL**

---

**(e)  $\frac{9}{4} \times 44$  g**

**Solution:**

$$\begin{aligned}\frac{9}{4} \times 44 \\ &= 9 \times 11 \\ &= 99\end{aligned}$$

**Answer = 99 g**

---

**(f)  $\frac{2}{9} \times 27$  m**

**Solution:**

$$\begin{aligned}\frac{2}{9} \times 27 \\ &= 2 \times 3 \\ &= 6\end{aligned}$$

**Answer = 6 m**

---

**Q6. Solve the following.**

---

**(a)  $3 \frac{9}{10}$  of  $1 \frac{1}{13}$**

**Solution:**

$$3\frac{9}{10} = \frac{39}{10}$$

$$1\frac{1}{13} = \frac{14}{13}$$

$$\frac{39}{10} \times \frac{14}{13}$$

Cancel:

$$39 \div 13 = 3$$

$$14 \div 10 = 7/5$$

$$= \frac{3 \times 7}{5}$$

$$= \frac{21}{5}$$

$$= 4\frac{1}{5}$$

**Answer = 4 1/5**

---

**(b) 2 4/5 of 3 4/7**

**Solution:**

$$2\frac{4}{5} = \frac{14}{5}$$

$$3\frac{4}{7} = \frac{25}{7}$$

$$\frac{14}{5} \times \frac{25}{7}$$

Cancel:

$$14 \div 7 = 2$$

$$25 \div 5 = 5$$

$$= 2 \times 5$$

$$= 10$$

**Answer = 10**

---

**(c)  $4 \frac{9}{14}$  of  $1 \frac{8}{13}$**

**Solution:**

$$4 \frac{9}{14} = \frac{65}{14}$$
$$1 \frac{8}{13} = \frac{21}{13}$$
$$\frac{65}{14} \times \frac{21}{13}$$

Cancel:

$$65 \div 13 = 5$$

$$21 \div 14 = 3/2$$

$$= \frac{15}{2}$$
$$= 7 \frac{1}{2}$$

**Answer =  $7 \frac{1}{2}$**

---

**(d)  $3 \frac{6}{25}$  of  $6 \frac{1}{9}$**

**Solution:**

$$3 \frac{6}{25} = \frac{81}{25}$$
$$6 \frac{1}{9} = \frac{55}{9}$$
$$\frac{81}{25} \times \frac{55}{9}$$

Cancel:

$$81 \div 9 = 9$$

$$55 \div 25 = 11/5$$

$$\begin{aligned} &= \frac{99}{5} \\ &= 19\frac{4}{5} \end{aligned}$$

**Answer = 19 4/5**

---

**(e) 2 2/5 of 2 1/10**

**Solution:**

$$\begin{aligned} 2\frac{2}{5} &= \frac{12}{5} \\ 2\frac{1}{10} &= \frac{21}{10} \\ \frac{12}{5} \times \frac{21}{10} \end{aligned}$$

Cancel:

$$12 \div 10 = 6/5$$

$$\begin{aligned} &= \frac{126}{25} \\ &= 5\frac{1}{25} \end{aligned}$$

**Answer = 5 1/25**

---

**(f) 1 1/2 of 3 3/5**

**Solution:**

$$\begin{aligned} 1\frac{1}{2} &= \frac{3}{2} \\ 3\frac{3}{5} &= \frac{18}{5} \\ \frac{3}{2} \times \frac{18}{5} \end{aligned}$$

Cancel:

$$18 \div 2 = 9$$

$$\begin{aligned} &= \frac{27}{5} \\ &= 5\frac{2}{5} \end{aligned}$$

**Answer = 5 2/5**

### **PRACTICE TIME 2.4**

Q1. Solve

(a)  $14 + \frac{4}{5} - \frac{3}{2} \times \frac{1}{3}$

Step 1: Do multiplication first.

$$\frac{3}{2} \times \frac{1}{3} = \frac{1}{2}$$

Step 2: Substitute.

$$14 + \frac{4}{5} - \frac{1}{2}$$

LCM of 5 and 2 = 10

$$\begin{aligned} &= \frac{8}{10} - \frac{5}{10} \\ &= \frac{3}{10} \\ &= 14\frac{3}{10} \end{aligned}$$

Answer:

$$14\frac{3}{10}$$

---

$$(b) 6 \times \frac{2}{3} + \frac{1}{4} - \frac{1}{8}$$

Step 1: Multiply first.

$$6 \times \frac{2}{3} = 4$$

Step 2:

$$4 + \frac{1}{4} - \frac{1}{8}$$

LCM of 4 and 8 = 8

$$\begin{aligned} &= 4 + \frac{2}{8} - \frac{1}{8} \\ &= 4 + \frac{1}{8} \end{aligned}$$

Answer:

$$4 \frac{1}{8}$$

---

$$(c) 20 + \frac{15}{21} \times \frac{7}{5} - 12$$

Step 1: Simplify multiplication.

$$\begin{aligned} \frac{15}{21} &= \frac{5}{7} \\ \frac{5}{7} \times \frac{7}{5} &= 1 \end{aligned}$$

Step 2:

$$\begin{aligned} &20 + 1 - 12 \\ &= 21 - 12 \\ &= 9 \end{aligned}$$

Answer:

$$9$$

---

(d)  $59 + \frac{8}{27} \times \frac{9}{2} - \frac{1}{3}$

Step 1: Multiply first.

$$\frac{8}{27} \times \frac{9}{2}$$

Cancel 9 and 27.

$$\begin{aligned} &= \frac{8}{3 \times 2} \\ &= \frac{4}{3} \end{aligned}$$

Step 2:

$$\begin{aligned} &59 + \frac{4}{3} - \frac{1}{3} \\ &59 + \frac{3}{3} \\ &59 + 1 \\ &= 60 \end{aligned}$$

Answer:

60

---

Q2. Solve the following

(a)  $\left(\frac{3}{4} + \frac{8}{5} - \frac{1}{4}\right) \times \frac{1}{2}$

Step 1: Solve bracket.

$$\begin{aligned} \frac{3}{4} - \frac{1}{4} &= \frac{2}{4} = \frac{1}{2} \\ \frac{1}{2} + \frac{8}{5} & \end{aligned}$$

LCM = 10

$$\begin{aligned} &= \frac{5}{10} + \frac{16}{10} \\ &= \frac{21}{10} \end{aligned}$$

Step 2: Multiply by  $\frac{1}{2}$ .

$$\begin{aligned} &\frac{21}{10} \times \frac{1}{2} \\ &= \frac{21}{20} \\ &= 1\frac{1}{20} \end{aligned}$$

Answer:

$$1\frac{1}{20}$$

---

(b)  $\left(19 \times \frac{5}{8} + \frac{1}{8}\right) - \frac{1}{2}$

Step 1: Multiply.

$$19 \times \frac{5}{8} = \frac{95}{8}$$

Step 2: Add.

$$\begin{aligned} &\frac{95}{8} + \frac{1}{8} \\ &= \frac{96}{8} \\ &= 12 \end{aligned}$$

Step 3: Subtract.

$$\begin{aligned} &12 - \frac{1}{2} \\ &= 11\frac{1}{2} \end{aligned}$$

Answer:

$$11 \frac{1}{2}$$

---

Q3. Find the reciprocal

(a)  $\frac{12}{5}$

Reciprocal =  $\frac{5}{12}$

Answer: 5/12

---

(b)  $\frac{4}{9}$

Reciprocal =  $\frac{9}{4}$

Answer: 9/4

---

(c)  $\frac{1}{7}$

Reciprocal =  $\frac{7}{1}$

Answer: 7

---

(d)  $5 \frac{2}{5}$

Convert to improper fraction.

$$5 \frac{2}{5} = \frac{27}{5}$$

Reciprocal:

$$\frac{5}{27}$$

Answer: 5/27

---

## PRACTICE TIME 2.5

Q1. The height of Reema and Suresh are  $158\frac{5}{6}$ cm and  $148\frac{3}{4}$ cm respectively.  
Who is taller and by how much?

Given

$$\text{Reema} = 158\frac{5}{6}\text{cm}$$

$$\text{Suresh} = 148\frac{3}{4}\text{cm}$$

Solution

Difference

$$158\frac{5}{6} - 148\frac{3}{4}$$

Whole numbers:

$$158 - 148 = 10$$

Fractions:

LCM of 6 and 4 = 12

$$\begin{aligned}\frac{5}{6} &= \frac{10}{12} \\ \frac{3}{4} &= \frac{9}{12} \\ \frac{10}{12} - \frac{9}{12} &= \frac{1}{12}\end{aligned}$$

Therefore,

$$10 + \frac{1}{12} = 10\frac{1}{12}$$

Answer:

Reema is taller by  $10\frac{1}{12}$ cm.

---

Q2. Reshma purchased a piece of 30 metres cloth. She used  $3\frac{2}{5}$  metres for a table cover and  $2\frac{2}{3}$  metres for a bed sheet. How much cloth is left?

Given

Total cloth = 30 m

$$\text{Used} = 3\frac{2}{5} + 2\frac{2}{3}$$

Solution

Convert into improper fractions.

$$3\frac{2}{5} = \frac{17}{5}$$
$$2\frac{2}{3} = \frac{8}{3}$$

LCM of 5 and 3 = 15

$$\frac{17}{5} = \frac{51}{15}$$
$$\frac{8}{3} = \frac{40}{15}$$
$$\frac{51}{15} + \frac{40}{15} = \frac{91}{15}$$
$$= 6\frac{1}{15}$$

Cloth left:

$$30 - 6\frac{1}{15}$$
$$= 29\frac{15}{15} - 6\frac{1}{15}$$
$$= 23\frac{14}{15}$$

Answer:

$23\frac{14}{15}$  metres cloth is left.

---

Q3. A cylinder contains 42 litres of gas.  $21\frac{5}{7}$  litres of gas is used. How much gas is left?

Given

Total gas = 42 litres

Used gas =  $21\frac{5}{7}$  litres

Solution

$$\begin{aligned}42 - 21\frac{5}{7} \\= 41\frac{7}{7} - 21\frac{5}{7}\end{aligned}$$

Subtract whole numbers:

$$41 - 21 = 20$$

Subtract fractions:

$$\begin{aligned}\frac{7}{7} - \frac{5}{7} &= \frac{2}{7} \\= 20\frac{2}{7}\end{aligned}$$

Answer:

$20\frac{2}{7}$  litres gas is left.

## NCERT CORNER

### Question 1

**Method:** Multiply the numerator and denominator by the same number.

---

(a)  $\frac{1}{3}$

Multiply by 2, 3, 4 and 5.

$$\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6}$$

$$\frac{1}{3} = \frac{1 \times 3}{3 \times 3} = \frac{3}{9}$$

$$\frac{1}{3} = \frac{1 \times 4}{3 \times 4} = \frac{4}{12}$$

$$\frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15}$$

**Answer:**

$\frac{1}{3}$	$=$	$\frac{2}{6}$	$=$	$\frac{3}{9}$	$=$	$\frac{4}{12}$	$=$	$\frac{5}{15}$
---------------	-----	---------------	-----	---------------	-----	----------------	-----	----------------

---

**(b)**  $\frac{1}{4}$

Multiply by 2, 3, 4 and 5.

$$\frac{1}{4} = \frac{2}{8}$$

$$\frac{1}{4} = \frac{3}{12}$$

$$\frac{1}{4} = \frac{4}{16}$$

$$\frac{1}{4} = \frac{5}{20}$$

**Answer:**

$\frac{1}{4}$	$=$	$\frac{2}{8}$	$=$	$\frac{3}{12}$	$=$	$\frac{4}{16}$	$=$	$\frac{5}{20}$
---------------	-----	---------------	-----	----------------	-----	----------------	-----	----------------

---

**(c)**  $\frac{1}{5}$

Multiply by 2, 3, 4 and 5.

$$\frac{1}{5} = \frac{2}{10}$$

$$\frac{1}{5} = \frac{3}{15}$$

$$\frac{1}{5} = \frac{4}{20}$$

$$\frac{1}{5} = \frac{5}{25}$$

**Answer:**

$$\boxed{\frac{1}{5} = \frac{2}{10} = \frac{3}{15} = \frac{4}{20} = \frac{5}{25}}$$

**(d)**  $\frac{1}{6}$

Multiply by 2, 3, 4 and 5.

$$\frac{1}{6} = \frac{2}{12}$$

$$\frac{1}{6} = \frac{3}{18}$$

$$\frac{1}{6} = \frac{4}{24}$$

$$\frac{1}{6} = \frac{5}{30}$$

**Answer:**

$$\boxed{\frac{1}{6} = \frac{2}{12} = \frac{3}{18} = \frac{4}{24} = \frac{5}{30}}$$

### Question 2(A)

How many  $\frac{1}{6}$ s make  $\frac{1}{3}$ ?

Convert  $\frac{1}{3}$  into sixths.

$$\frac{1}{3} = \frac{1 \times 2}{3 \times 2}$$

$$\frac{1}{3} = \frac{2}{6}$$

This means  $\frac{1}{3}$  contains two  $\frac{1}{6}$  pieces.

**Answer:**

**2**

---

### Question 2(B)

**(a) How many  $\frac{1}{8}$ s make  $\frac{1}{4}$ ?**

Convert  $\frac{1}{4}$  into eighths.

$$\begin{aligned}\frac{1}{4} &= \frac{1 \times 2}{4 \times 2} \\ \frac{1}{4} &= \frac{2}{8}\end{aligned}$$

So,  $\frac{1}{4}$  contains two  $\frac{1}{8}$  pieces.

**Answer:**

**2**

---

**(b) How many  $\frac{1}{8}$ s make  $\frac{1}{2}$ ?**

Convert  $\frac{1}{2}$  into eighths.

$$\begin{aligned}\frac{1}{2} &= \frac{1 \times 4}{2 \times 4} \\ \frac{1}{2} &= \frac{4}{8}\end{aligned}$$

So,  $\frac{1}{2}$  contains four  $\frac{1}{8}$  pieces.

**Answer:**

**4**

---

**Question 2(C)**

**(a) How many  $\frac{1}{12}$ s make  $\frac{1}{2}$ ?**

Convert  $\frac{1}{2}$  into twelfths.

$$\begin{aligned}\frac{1}{2} &= \frac{1 \times 6}{2 \times 6} \\ \frac{1}{2} &= \frac{6}{12}\end{aligned}$$

**Answer:**

**6**

---

**(b) How many  $\frac{1}{12}$ s make  $\frac{1}{3}$ ?**

Convert  $\frac{1}{3}$  into twelfths.

$$\begin{aligned}\frac{1}{3} &= \frac{1 \times 4}{3 \times 4} \\ \frac{1}{3} &= \frac{4}{12}\end{aligned}$$

**Answer:**

**4**

---

**(c) How many  $\frac{1}{12}$ s make  $\frac{1}{4}$ ?**

Convert  $\frac{1}{4}$  into twelfths.

$$\frac{1}{4} = \frac{1 \times 3}{4 \times 3}$$
$$\frac{1}{4} = \frac{3}{12}$$

**Answer:**

**3**

---

**(d) How many  $\frac{1}{12}$ s make  $\frac{1}{6}$ ?**

Convert  $\frac{1}{6}$  into twelfths.

$$\frac{1}{6} = \frac{1 \times 2}{6 \times 2}$$
$$\frac{1}{6} = \frac{2}{12}$$

**Answer:**

**2**

**Question 3. Do as instructed using your fraction kit**

**(a) Make a whole using only  $\frac{1}{2}$  and  $\frac{1}{6}$  pieces.**

Take:

$$\frac{1}{2} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$

LCM of 2 and 6 = 6

$$\frac{1}{2} = \frac{3}{6}$$
$$\frac{3}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{6}{6} = 1$$

**Answer:**

$$\boxed{\frac{1}{2} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = 1}$$

---

**(b) Make a whole using  $\frac{1}{12}$ ,  $\frac{1}{4}$  and  $\frac{1}{2}$  pieces.**

Take:

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$$

Convert all into twelfths.

$$\begin{aligned}\frac{1}{2} &= \frac{6}{12} \\ \frac{1}{4} &= \frac{3}{12} \\ \frac{1}{12} + \frac{1}{12} + \frac{1}{12} &= \frac{3}{12} \\ \frac{6}{12} + \frac{3}{12} + \frac{3}{12} &= \frac{12}{12} = 1\end{aligned}$$

**Answer:**

$$\boxed{\frac{1}{2} + \frac{1}{4} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12} = 1}$$

---

**(c) Make a whole using any five equal pieces.**

Take five pieces of  $\frac{1}{5}$ .

$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{5}{5} = 1$$

**Answer:**

$$\boxed{\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 1}$$

---

**(d) Make a whole using any seven pieces.**

Take seven pieces of  $\frac{1}{7}$ .

$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{7}{7} = 1$$

**Answer:**

$$\boxed{\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = 1}$$

---

**Question 4. Fill in the blanks with equivalent fractions**

**(a)**

$$\frac{1}{7} = \frac{1 \times 2}{7 \times 2} = \frac{2}{14}$$

**Answer:**

$$\boxed{\frac{1}{7} = \frac{2}{14}}$$

---

**(b)**

$$\frac{2}{3} = \frac{2 \times 2}{3 \times 2} = \frac{4}{6}$$

**Answer:**

$$\boxed{\frac{2}{3} = \frac{4}{6}}$$

---

(c)

$$\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$$

**Answer:**

$$\boxed{\frac{3}{4} = \frac{6}{8}}$$

---

(d)

$$\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$$

**Answer:**

$$\boxed{\frac{3}{5} = \frac{6}{10}}$$

---

**Question 5. Put a tick (✓) against the fractions that are equivalent**

(a)

$$\frac{2}{3} \text{ and } \frac{3}{4}$$

Cross multiply:

$$2 \times 4 = 8$$

$$3 \times 3 = 9$$

Since  $8 \neq 9$ ,

**Answer:**

X Not equivalent

---

(b)

$$\frac{3}{5} \text{ and } \frac{6}{10}$$

Cross multiply:

$$3 \times 10 = 30$$

$$5 \times 6 = 30$$

Since products are equal,

**Answer:**

✓ Equivalent

---

(c)

$$\frac{4}{12} \text{ and } \frac{2}{6}$$

Cross multiply:

$$4 \times 6 = 24$$

$$12 \times 2 = 24$$

Since products are equal,

**Answer:**

✓ Equivalent

---

(d)

$$\frac{6}{9} \text{ and } \frac{1}{3}$$

Cross multiply:

$$6 \times 3 = 18$$

$$9 \times 1 = 9$$

Since  $18 \neq 9$ ,

**Answer:**

X Not equivalent

---

**Question 6. Fill the boxes so that the fractions become equivalent**

**(a)**

$$\frac{2}{5} = \frac{\square}{10}$$

Denominator:

$$5 \times 2 = 10$$

Multiply numerator by 2.

$$\begin{aligned} 2 \times 2 &= 4 \\ \frac{2}{5} &= \frac{4}{10} \end{aligned}$$

**Answer:**

**4**

---

**(b)**

$$\begin{aligned} \frac{3}{4} &= \frac{\square}{16} \\ 4 \times 4 &= 16 \\ 3 \times 4 &= 12 \\ \frac{3}{4} &= \frac{12}{16} \end{aligned}$$

**Answer:**

12

---

(c)

$$\begin{aligned}\frac{4}{7} &= \frac{8}{\square} \\ 4 \times 2 &= 8 \\ 7 \times 2 &= 14 \\ \frac{4}{7} &= \frac{8}{14}\end{aligned}$$

Answer:

14

---

(d)

$$\begin{aligned}\frac{5}{9} &= \frac{25}{\square} \\ 5 \times 5 &= 25 \\ 9 \times 5 &= 45 \\ \frac{5}{9} &= \frac{25}{45}\end{aligned}$$

Answer:

45

---

**Question 7. Compare the fractions using < and >**

---

(a)

$$\frac{1}{4} \square \frac{3}{4}$$

Same denominator (4).

Compare numerators:

$$1 < 3$$

Therefore,

$$\boxed{\frac{1}{4} < \frac{3}{4}}$$

---

**(b)**

$$\frac{3}{5} \square \frac{4}{5}$$

**Same denominator (5).**

Compare numerators:

$$3 < 4$$

Therefore,

$$\boxed{\frac{3}{5} < \frac{4}{5}}$$

---

**(c)**

$$\frac{5}{7} \square \frac{2}{7}$$

**Same denominator (7).**

Compare numerators:

$$5 > 2$$

Therefore,

$$\boxed{\frac{5}{7} > \frac{2}{7}}$$

---

(d)

$$\frac{7}{8} \square \frac{3}{8}$$

**Same denominator (8).**

Compare numerators:

$$7 > 3$$

Therefore,

$$\boxed{\frac{7}{8} > \frac{3}{8}}$$

---

(e)

$$\frac{5}{10} \square \frac{6}{10}$$

**Same denominator (10).**

Compare numerators:

$$5 < 6$$

Therefore,

$$\boxed{\frac{5}{10} < \frac{6}{10}}$$

---

(f)

$$\frac{2}{6} \square \frac{1}{6}$$

**Same denominator (6).**

Compare numerators:

$$2 > 1$$

Therefore,

$$\boxed{\frac{2}{6} > \frac{1}{6}}$$

**Question 8. Compare the following fractions**

---

**(a)**

$$\frac{3}{8} \square \frac{3}{7}$$

**Solution:**

LCM of 8 and 7 = 56

$$\begin{aligned} \frac{3}{8} &= \frac{21}{56} \\ \frac{3}{7} &= \frac{24}{56} \end{aligned}$$

Since

$$21 < 24$$

Therefore,

$$\boxed{\frac{3}{8} < \frac{3}{7}}$$

**Answer:**

$$\boxed{\frac{3}{8} < \frac{3}{7}}$$

---

(b)

$$\frac{4}{9} \square \frac{4}{10}$$

**Solution:**

LCM of 9 and 10 = 90

$$\frac{4}{9} = \frac{40}{90}$$
$$\frac{4}{10} = \frac{36}{90}$$

Since

$$40 > 36$$

Therefore,

$$\boxed{\frac{4}{9} > \frac{4}{10}}$$

**Answer:**

$$\boxed{\frac{4}{9} > \frac{4}{10}}$$

---

(c)

$$\frac{2}{7} \square \frac{2}{5}$$

**Solution:**

LCM of 7 and 5 = 35

$$\frac{2}{7} = \frac{10}{35}$$
$$\frac{2}{5} = \frac{14}{35}$$

Since

$$10 < 14$$

Therefore,

$$\boxed{\frac{2}{7} < \frac{2}{5}}$$

**Answer:**

$$\boxed{\frac{2}{7} < \frac{2}{5}}$$

**(d)**

$$\frac{5}{7} \square \frac{5}{6}$$

**Solution:**

LCM of 7 and 6 = 42

$$\frac{5}{7} = \frac{30}{42}$$
$$\frac{5}{6} = \frac{35}{42}$$

Since

$$30 < 35$$

Therefore,

$$\boxed{\frac{5}{7} < \frac{5}{6}}$$

**Answer:**

$$\boxed{\frac{5}{7} < \frac{5}{6}}$$

---

(e)

$$\frac{6}{9} \square \frac{6}{10}$$

**Solution:**

LCM of 9 and 10 = 90

$$\frac{6}{9} = \frac{60}{90}$$
$$\frac{6}{10} = \frac{54}{90}$$

Since

$$60 > 54$$

Therefore,

$$\boxed{\frac{6}{9} > \frac{6}{10}}$$

**Answer:**

$$\boxed{\frac{6}{9} > \frac{6}{10}}$$

---

(f)

$$\frac{7}{9} \square \frac{7}{11}$$

**Solution:**

LCM of 9 and 11 = 99

$$\frac{7}{9} = \frac{77}{99}$$
$$\frac{7}{11} = \frac{63}{99}$$

Since

$$77 > 63$$

Therefore,

$$\boxed{\frac{7}{9} > \frac{7}{11}}$$

**Answer:**

$$\boxed{\frac{7}{9} > \frac{7}{11}}$$

**Question 9. Draw the following fractions on a number line**

*(This question is activity-based and should be drawn in the notebook/textbook.)*

(a)

$$\frac{2}{3}, \frac{5}{3}$$

**Solution:**

$$\frac{2}{3}$$

lies between 0 and 1.

$$\frac{5}{3} = 1\frac{2}{3}$$

lies between 1 and 2.

**Answer:**

Mark  $\frac{2}{3}$  and  $\frac{5}{3}$  correctly on the number line.

---

**(b)**

$$\frac{3}{4}, \frac{5}{4}$$

**Solution:**

$$\frac{3}{4}$$

lies between 0 and 1.

$$\frac{5}{4} = 1\frac{1}{4}$$

lies between 1 and 2.

**Answer:**

Mark  $\frac{3}{4}$  and  $\frac{5}{4}$  on the number line.

---

**(c)**

$$\frac{4}{8}, \frac{9}{8}$$

**Solution:**

$$\frac{4}{8} = \frac{1}{2}$$

lies at the midpoint between 0 and 1.

$$\frac{9}{8} = 1\frac{1}{8}$$

lies between 1 and 2.

**Answer:**

Mark  $\frac{4}{8}$  and  $\frac{9}{8}$  on the number line.

---

**Question 10. Circle the fractions greater than 1**

**Given Fractions:**

$$\frac{7}{9}, \frac{5}{4}, \frac{2}{5}, \frac{2}{3}, \frac{3}{9}, \frac{7}{11}, \frac{13}{11}, \frac{9}{4}, \frac{4}{9}, \frac{12}{5}, \frac{9}{4}, \frac{7}{3}, \frac{12}{8}, \frac{5}{7}$$

**Solution:**

A fraction is greater than 1 if:

$$\text{Numerator} > \text{Denominator}$$

Checking each fraction:

**Fraction Greater than 1?**

$\frac{7}{9}$  No

$\frac{5}{4}$  Yes

$\frac{2}{5}$  No

$\frac{2}{3}$  No

$\frac{3}{9}$  No

$\frac{7}{11}$  No

**Fraction Greater than 1?**

13/11    Yes

9/4        Yes

4/9        No

12/5       Yes

9/4        Yes

7/3        Yes

12/8       Yes

5/7        No

**Answer:**

5	13	9	12	9	7	12
$\frac{5}{4}$	$\frac{13}{11}$	$\frac{9}{4}$	$\frac{12}{5}$	$\frac{9}{4}$	$\frac{7}{3}$	$\frac{12}{8}$

---

**Question 11. Compare the fractions using 1 as a reference**

**(a)**

$$\frac{8}{7} \square \frac{9}{15}$$

Since

$$\frac{8}{7} > 1$$

and

$$\frac{9}{15} < 1$$

Therefore,

$$\boxed{\frac{8}{7} > \frac{9}{15}}$$

---

(b)

$$\begin{aligned}\frac{13}{20} &\square \frac{17}{15} \\ \frac{13}{20} &< 1 \\ \frac{17}{15} &> 1\end{aligned}$$

Therefore,

$$\boxed{\frac{13}{20} < \frac{17}{15}}$$

---

(c)

$$\begin{aligned}\frac{7}{6} &\square \frac{8}{8} \\ \frac{7}{6} &> 1 \\ \frac{8}{8} &= 1\end{aligned}$$

Therefore,

$$\boxed{\frac{7}{6} > \frac{8}{8}}$$

---

(d)

$$\frac{6}{6} \square \frac{19}{12}$$

$$\frac{6}{6} = 1$$
$$\frac{19}{12} > 1$$

Therefore,

$$\boxed{\frac{6}{6} < \frac{19}{12}}$$

**Question 11. Compare the fractions using 1 as a reference**

---

(e)

$$\frac{12}{9} \square \frac{4}{5}$$

**Solution:**

$$\frac{12}{9} > 1$$

because numerator > denominator.

$$\frac{4}{5} < 1$$

because numerator < denominator.

Therefore,

$$\boxed{\frac{12}{9} > \frac{4}{5}}$$

**Answer:**

$$\boxed{\frac{12}{9} > \frac{4}{5}}$$

---

(f)

$$\frac{15}{5} \square \frac{16}{4}$$

**Solution:**

$$\frac{15}{5} = 3$$
$$\frac{16}{4} = 4$$

Since

$$3 < 4$$

Therefore,

$$\boxed{\frac{15}{5} < \frac{16}{4}}$$

**Answer:**

$$\boxed{\frac{15}{5} < \frac{16}{4}}$$

---

**Question 12. Compare the fractions**

---

(a)

$$\frac{2}{9} \square \frac{4}{7}$$

**Solution:**

LCM of 9 and 7 = 63

$$\frac{2}{9} = \frac{14}{63}$$
$$\frac{4}{7} = \frac{36}{63}$$

Since

$$14 < 36$$

Therefore,

$$\boxed{\frac{2}{9} < \frac{4}{7}}$$

**Answer:**

$$\boxed{\frac{2}{9} < \frac{4}{7}}$$

**(b)**

$$\frac{11}{14} \square \frac{7}{20}$$

**Solution:**

LCM of 14 and 20 = 140

$$\frac{11}{14} = \frac{110}{140}$$
$$\frac{7}{20} = \frac{49}{140}$$

Since

$$110 > 49$$

Therefore,

$$\boxed{\frac{11}{14} > \frac{7}{20}}$$

**Answer:**

$$\boxed{\frac{11}{14} > \frac{7}{20}}$$

---

**(c)**

$$\frac{5}{7} \square \frac{3}{9}$$

**Solution:**

LCM of 7 and 9 = 63

$$\frac{5}{7} = \frac{45}{63}$$
$$\frac{3}{9} = \frac{21}{63}$$

Since

$$45 > 21$$

Therefore,

$$\boxed{\frac{5}{7} > \frac{3}{9}}$$

**Answer:**

$$\boxed{\frac{5}{7} > \frac{3}{9}}$$

---

**(d)**

$$\frac{6}{7} \square \frac{4}{10}$$

**Solution:**

LCM of 7 and 10 = 70

$$\frac{6}{7} = \frac{60}{70}$$
$$\frac{4}{10} = \frac{28}{70}$$

Since

$$60 > 28$$

Therefore,

$$\boxed{\frac{6}{7} > \frac{4}{10}}$$

**Answer:**

$$\boxed{\frac{6}{7} > \frac{4}{10}}$$

(e)

$$\frac{9}{17} \square \frac{3}{15}$$

**Solution:**

LCM of 17 and 15 = 255

$$\frac{9}{17} = \frac{135}{255}$$
$$\frac{3}{15} = \frac{51}{255}$$

Since

$$135 > 51$$

Therefore,

$$\boxed{\frac{9}{17} > \frac{3}{15}}$$

**Answer:**

$$\boxed{\frac{9}{17} > \frac{3}{15}}$$

---

**(f)**

$$\frac{7}{12} \square \frac{3}{11}$$

**Solution:**

LCM of 12 and 11 = 132

$$\frac{7}{12} = \frac{77}{132}$$
$$\frac{3}{11} = \frac{36}{132}$$

Since

$$77 > 36$$

Therefore,

$$\boxed{\frac{7}{12} > \frac{3}{11}}$$

**Answer:**

$$\boxed{\frac{7}{12} > \frac{3}{11}}$$

---

(g)

$$\frac{1}{3} \square \frac{5}{9}$$

**Solution:**

LCM of 3 and 9 = 9

$$\frac{1}{3} = \frac{3}{9}$$
$$\frac{5}{9} = \frac{5}{9}$$

Since

$$3 < 5$$

Therefore,

$$\boxed{\frac{1}{3} < \frac{5}{9}}$$

**Answer:**

$$\boxed{\frac{1}{3} < \frac{5}{9}}$$

---

(h)

$$\frac{3}{9} \square \frac{4}{7}$$

**Solution:**

LCM of 9 and 7 = 63

$$\frac{3}{9} = \frac{21}{63}$$
$$\frac{4}{7} = \frac{36}{63}$$

Since

$$21 < 36$$

Therefore,

$$\boxed{\frac{3}{9} < \frac{4}{7}}$$

**Answer:**

$$\boxed{\frac{3}{9} < \frac{4}{7}}$$

---

**Try This**

**Length of one ant =  $\frac{1}{4}$ cm**

**Number of ants = 16**

**To Find:**

Total length of 16 ants

**Solution:**

$$16 \times \frac{1}{4}$$
$$= \frac{16}{4}$$
$$= 4$$

**Answer:**

**The total length of 16 ants is 4 cm.**

**Let Us Do – Q1**

**Circle the fractions equal to  $\frac{1}{2}$**

Given fractions:

$$\frac{2}{4}, \frac{5}{9}, \frac{3}{5}, \frac{5}{7}, \frac{6}{12}, \frac{10}{20}, \frac{7}{14}, \frac{5}{10}, \frac{6}{8}, \frac{8}{16}$$

A fraction is equal to  $\frac{1}{2}$  if numerator  $\times 2 =$  denominator.

**Checking:**

$$\begin{aligned}\frac{2}{4} &= \frac{1}{2} \\ \frac{6}{12} &= \frac{1}{2} \\ \frac{10}{20} &= \frac{1}{2} \\ \frac{7}{14} &= \frac{1}{2} \\ \frac{5}{10} &= \frac{1}{2} \\ \frac{8}{16} &= \frac{1}{2}\end{aligned}$$

**Answer:**

**$\frac{2}{4}, \frac{6}{12}, \frac{10}{20}, \frac{7}{14}, \frac{5}{10}, \frac{8}{16}$**

---

**Let Us Do – Q2**

**Circle the fractions less than half**

Fractions given:

$$\frac{3}{9}, \frac{4}{8}, \frac{2}{4}, \frac{1}{3}, \frac{12}{15}, \frac{7}{11}, \frac{8}{15}, \frac{11}{16}, \frac{11}{12}, \frac{15}{31}, \frac{3}{15}, \frac{6}{18}$$

**Compare with  $\frac{1}{2}$**

$$\frac{3}{9} = \frac{1}{3} < \frac{1}{2}$$

$$\frac{4}{8} = \frac{1}{2}$$

$$\frac{2}{4} = \frac{1}{2}$$

$$\frac{1}{3} < \frac{1}{2}$$

$$\frac{12}{15} > \frac{1}{2}$$

$$\frac{7}{11} > \frac{1}{2}$$

$$\frac{8}{15} > \frac{1}{2}$$

$$\frac{11}{16} > \frac{1}{2}$$

$$\frac{11}{12} > \frac{1}{2}$$

$$\frac{15}{31} < \frac{1}{2}$$

$$\frac{3}{15} = \frac{1}{5} < \frac{1}{2}$$

$$\frac{6}{18} = \frac{1}{3} < \frac{1}{2}$$

**Answer:**

**3/9, 1/3, 15/31, 3/15, 6/18**

## **EXAM TIME**

### **MCQ 1**

V

**Q1.  $4 \times \frac{6}{8}$  in lowest form is:**

- (a)  $3/2$
- (b) 3
- (c) 2
- (d) 1

**Solution:**

$$\begin{aligned}4 \times \frac{6}{8} \\&= 4 \times \frac{3}{4} \\&= \frac{12}{4} \\&= 3\end{aligned}$$

**Answer: (b) 3**

---

### MCQ 2

Which one of the following is true?

- (a)  $\frac{3}{4} < \frac{5}{6}$
- (b)  $\frac{5}{8} > \frac{9}{11}$
- (c)  $\frac{1}{9} = \frac{10}{99}$
- (d) None of these

**Solution:**

$$\begin{aligned}\frac{3}{4} &= \frac{9}{12} \\ \frac{5}{8} &= \frac{10}{12} \\ \frac{9}{12} &< \frac{10}{12}\end{aligned}$$

**Answer: (a)**

---

### MCQ 3

Which of the following is an equivalent fraction?

- (a)  $\frac{1}{2}$  and  $\frac{2}{3}$

(b)  $\frac{3}{4}$  and  $\frac{6}{8}$

(c)  $\frac{2}{5}$  and  $\frac{3}{7}$

(d)  $\frac{1}{3}$  and  $\frac{3}{5}$

**Solution:**

$$\frac{6}{8} = \frac{3}{4}$$

**Answer: (b)**

---

#### MCQ 4

On dividing  $\frac{36}{5}$  by  $\frac{36}{35}$ , we get:

$$\begin{aligned} & \frac{36}{5} \div \frac{36}{35} \\ &= \frac{36}{5} \times \frac{35}{36} \\ &= \frac{35}{5} \\ &= 7 \end{aligned}$$

**Answer: (a) 7**

---

#### MCQ 5

Sam had  $\frac{5}{6}$  of a cake. He ate  $\frac{2}{3}$  of it. What part of the cake did he eat?

$$\begin{aligned} & \frac{5}{6} \times \frac{2}{3} \\ &= \frac{10}{18} \\ &= \frac{5}{9} \end{aligned}$$

**Answer: (a)  $\frac{5}{9}$**

---

### MCQ 6

What is the sum of the multiplicative inverse of 7 and  $\frac{1}{5}$ ?

Multiplicative inverse of 7:

$$\frac{1}{7}$$

Now add:

$$\frac{1}{7} + \frac{1}{5}$$

LCM = 35

$$\begin{aligned} &= \frac{5}{35} + \frac{7}{35} \\ &= \frac{12}{35} \end{aligned}$$

**Answer: (a)**  $\frac{12}{35}$

---

### B. Fill in the Blanks

**1. A fraction has two parts: the \_\_\_\_\_ and the \_\_\_\_\_.**

A fraction has:

- Numerator (top number)
- Denominator (bottom number)

**Answer:**

**Numerator and Denominator**

---

**2. Fractions that have the same denominator are called \_\_\_\_\_ fractions.**

Example:

$$\frac{3}{7}, \frac{5}{7}, \frac{6}{7}$$

All have denominator 7.

**Answer:**

**Like fractions**

---

**3. Fractions in which the numerator is smaller than the denominator are called \_\_\_\_\_ fractions.**

Example:

$$\frac{2}{5}, \frac{3}{7}, \frac{4}{9}$$

Numerator < Denominator

**Answer:**

**Proper fractions**

---

**4. A \_\_\_\_\_ fraction has 1 as its numerator and a whole number as its denominator.**

Example:

$$\frac{1}{2}, \frac{1}{3}, \frac{1}{7}$$

**Answer:**

**Unit fraction**

---

**5. Fractions that represent the same part of a whole are called \_\_\_\_\_ fractions.**

Example:

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$$

**Answer:**

### **Equivalent fractions**

---

#### **C. Write True or False**

**1. The number written above the bar in a fraction is called the denominator.**

The number above the bar is called the numerator.

**Answer:**

**✗ False**

---

**2. A mixed fraction consists of a whole number and a proper fraction.**

Example:

$$2\frac{1}{3}$$

Whole number = 2

Proper fraction =  $\frac{1}{3}$

**Answer:**

**✓ True**

---

**3. The reciprocal of  $\frac{8}{3}$  is  $\frac{3}{8}$ .**

Reciprocal means interchange numerator and denominator.

$$\frac{8}{3} \rightarrow \frac{3}{8}$$

**Answer:**

**✓ True**

---

**4. Every natural number is a proper fraction.**

Natural numbers are not proper fractions.

**Answer:**

False

---

**5. Reciprocal of a proper fraction is an improper fraction.**

Example:

$$\frac{2}{5} \rightarrow \frac{5}{2}$$

is an improper fraction.

**Answer:**

True

---

**D. Very Short Answer Type Questions**

**1. Circle the unit fractions.**

Given:

$$\frac{1}{3}, \frac{3}{3}, \frac{1}{7}, \frac{1}{9}, \frac{6}{9}, \frac{5}{10}$$

Unit fraction = numerator is 1.

**Answer:**

1/3, 1/7, 1/9

---

**2. Make the equivalent fraction**

$$\frac{12}{32} = \frac{3}{\square}$$

**Solution**

Divide numerator and denominator by 4.

$$\frac{12 \div 4}{32 \div 4} = \frac{3}{8}$$

**Answer:****8**

---

**3. Write an equivalent fraction**

$$\frac{2}{3} = \frac{\square}{9}$$

**Solution**

$$3 \times 3 = 9$$

Multiply numerator by 3 also.

$$\frac{2 \times 3}{3 \times 3} = \frac{6}{9}$$

**Answer:****6**

---

**4. Fill in the box**

$$\frac{2}{15} \times \square = \frac{18}{135}$$

**Solution**

$$\frac{18}{135} = \frac{2 \times 9}{15 \times 9}$$

**Answer:**

**5. Subtract  $\frac{5}{12}$  from  $\frac{11}{12}$**

**Step 1**

$$\frac{11}{12} - \frac{5}{12}$$

**Step 2**

Same denominator.

$$\begin{aligned} &= \frac{11 - 5}{12} \\ &= \frac{6}{12} \end{aligned}$$

**Step 3**

Simplify.

$$= \frac{1}{2}$$

**Answer:**

1/2

**E. Short Answer Type Questions**

**1. How much is  $\frac{18}{5}$  more than  $\frac{11}{8}$ ?**

**Solution:**

$$\frac{18}{5} - \frac{11}{8}$$

LCM of 5 and 8 = 40

$$\frac{18}{5} = \frac{144}{40}$$

$$\begin{aligned}\frac{11}{8} &= \frac{55}{40} \\ \frac{144}{40} &- \frac{55}{40} \\ &= \frac{89}{40} \\ &= 2\frac{9}{40}\end{aligned}$$

**Answer** =  $2\frac{9}{40}$

---

**2. Reduce the fraction  $\frac{25}{60}$  to its lowest form using the HCF method.**

**Solution:**

Factors of 25 = 1, 5, 25

Factors of 60 = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

HCF of 25 and 60 = 5

Divide numerator and denominator by 5:

$$\begin{aligned}\frac{25}{60} &= \frac{25 \div 5}{60 \div 5} \\ &= \frac{5}{12}\end{aligned}$$

**Answer** =  $\frac{5}{12}$

---

**3. Add the unlike fractions  $\frac{3}{5} + \frac{2}{3}$**

**Solution:**

LCM of 5 and 3 = 15

$$\begin{aligned}\frac{3}{5} &= \frac{9}{15} \\ \frac{2}{3} &= \frac{10}{15}\end{aligned}$$

$$\begin{aligned}\frac{9}{15} + \frac{10}{15} \\ &= \frac{19}{15} \\ &= 1\frac{4}{15}\end{aligned}$$

**Answer** =  $1\frac{4}{15}$

---

**4. Multiply the mixed fraction  $2\frac{1}{3}$  by 4.**

**Solution:**

Convert mixed fraction into an improper fraction:

$$2\frac{1}{3} = \frac{(2 \times 3) + 1}{3} = \frac{7}{3}$$

Now multiply:

$$\frac{7}{3} \times 4 = \frac{28}{3}$$

Convert into mixed form:

$$\frac{28}{3} = 9\frac{1}{3}$$

**Answer** =  $9\frac{1}{3}$

---

**5. Compare  $\frac{3}{7}$  and  $\frac{2}{5}$  using cross multiplication.**

**Solution:**

$$\frac{3}{7} \text{ and } \frac{2}{5}$$

Cross multiply:

$$3 \times 5 = 15$$

$$2 \times 7 = 14$$

Since

$$15 > 14$$

Therefore,

$$\frac{3}{7} > \frac{2}{5}$$

**Answer:**  $\frac{3}{7} > \frac{2}{5}$

---

**6. Insert the appropriate inequality sign.**

**(a)**

$$\frac{6}{7} \text{ of } \frac{14}{2} \square \frac{12}{17} \text{ of } \frac{34}{8}$$

Left side:

$$\frac{6}{7} \times \frac{14}{2} = \frac{6 \times 14}{7 \times 2} = 6$$

Right side:

$$\frac{12}{17} \times \frac{34}{8} = \frac{12 \times 2}{8} = 3$$

Since

$$6 > 3$$

**Answer:**  $>$

---

**(b)**

$$\frac{8}{3} \text{ of } \frac{9}{16} \square \frac{5}{11} \text{ of } \frac{33}{40}$$

Left side:

$$\frac{8}{3} \times \frac{9}{16} = \frac{3}{2}$$

Right side:

$$\frac{5}{11} \times \frac{33}{40} = \frac{3}{8}$$

Since

$$\frac{3}{2} > \frac{3}{8}$$

## F. Long Answer Type Questions

### 1. Compare the fractions

(a)  $\frac{1}{5}$  and  $\frac{3}{10}$

Make denominators same.

$$\frac{1}{5} = \frac{1 \times 2}{5 \times 2} = \frac{2}{10}$$

Compare:

$$\frac{2}{10} < \frac{3}{10}$$

**Answer:**  $\frac{1}{5} < \frac{3}{10}$

---

(b)  $\frac{3}{4}$  and  $\frac{5}{8}$

$$\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$$

Compare:

$$\frac{6}{8} > \frac{5}{8}$$

**Answer:**  $\frac{3}{4} > \frac{5}{8}$

---

(c)  $\frac{5}{12}$  and  $\frac{1}{3}$

$$\frac{1}{3} = \frac{1 \times 4}{3 \times 4} = \frac{4}{12}$$

Compare:

$$\frac{5}{12} > \frac{4}{12}$$

**Answer:**  $\frac{5}{12} > \frac{1}{3}$

---

(d)  $\frac{11}{12}$  and  $\frac{5}{6}$

$$\frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12}$$

Compare:

$$\frac{11}{12} > \frac{10}{12}$$

**Answer:**  $\frac{11}{12} > \frac{5}{6}$

---

(e)  $\frac{3}{4}$  and  $\frac{9}{12}$

$$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

Compare:

$$\frac{9}{12} = \frac{9}{12}$$

**Answer:**  $\frac{3}{4} = \frac{9}{12}$

---

(f)  $\frac{5}{9}$  and  $\frac{2}{3}$

$$\frac{2}{3} = \frac{2 \times 3}{3 \times 3} = \frac{6}{9}$$

Compare:

$$\frac{5}{9} < \frac{6}{9}$$

**Answer:**  $\frac{5}{9} < \frac{2}{3}$

---

(g)  $\frac{1}{3}$  and  $\frac{2}{9}$

$$\frac{1}{3} = \frac{3}{9}$$

Compare:

$$\frac{3}{9} > \frac{2}{9}$$

**Answer:**  $\frac{1}{3} > \frac{2}{9}$

---

(h)  $\frac{3}{12}$  and  $\frac{1}{3}$

$$\frac{1}{3} = \frac{4}{12}$$

Compare:

$$\frac{3}{12} < \frac{4}{12}$$

**Answer:**  $\frac{3}{12} < \frac{1}{3}$

---

**2. Add the following**

**(a)**

$$\frac{1}{5} + \frac{3}{20}$$

LCM = 20

$$\begin{aligned}\frac{1}{5} &= \frac{4}{20} \\ \frac{4}{20} + \frac{3}{20} &= \frac{7}{20}\end{aligned}$$

**Answer:**  $\frac{7}{20}$

---

**(b)**

$$\frac{7}{10} + \frac{11}{15}$$

LCM = 30

$$\begin{aligned}\frac{7}{10} &= \frac{21}{30} \\ \frac{11}{15} &= \frac{22}{30} \\ \frac{21}{30} + \frac{22}{30} &= \frac{43}{30} = 1\frac{13}{30}\end{aligned}$$

**Answer:**  $1\frac{13}{30}$

---

(c)

$$\frac{3}{8} + \frac{5}{16} + \frac{1}{4}$$

LCM = 16

$$\begin{aligned}\frac{3}{8} &= \frac{6}{16} \\ \frac{1}{4} &= \frac{4}{16} \\ \frac{6}{16} + \frac{5}{16} + \frac{4}{16} &= \frac{15}{16}\end{aligned}$$

**Answer:**  $\frac{15}{16}$

---

(d)

$$1\frac{3}{4} + 2\frac{5}{12} + \frac{5}{6}$$

Convert to improper fractions:

$$\begin{aligned}1\frac{3}{4} &= \frac{7}{4} \\ 2\frac{5}{12} &= \frac{29}{12} \\ \frac{5}{6}\end{aligned}$$

LCM = 12

$$\frac{7}{4} = \frac{21}{12}$$

$$\frac{5}{6} = \frac{10}{12}$$
$$\frac{21}{12} + \frac{29}{12} + \frac{10}{12} = \frac{60}{12} = 5$$

**Answer: 5**

---

### 3. Multiply the following

(a)

$$7 \times \frac{1}{2} = \frac{7}{2} = 3\frac{1}{2}$$

**Answer:  $3\frac{1}{2}$**

---

(b)

$$6 \times \frac{2}{3} = \frac{12}{3} = 4$$

**Answer: 4**

---

(c)

$$5 \times \frac{7}{8} = \frac{35}{8} = 4\frac{3}{8}$$

**Answer:  $4\frac{3}{8}$**

---

(d)

$$21 \times \frac{8}{4}$$
$$= \frac{21 \times 8}{4}$$

$$= \frac{168}{4} = 42$$

**Answer: 42**

**4. Divide the following**

**(a)**

$$\frac{3}{5} \div \frac{9}{10}$$

**Step 1: Write the reciprocal of the divisor**

$$\frac{3}{5} \times \frac{10}{9}$$

**Step 2: Simplify**

$$\frac{3 \times 10}{5 \times 9}$$

Cancel 10 and 5:

$$\begin{aligned} &= \frac{3 \times 2}{9} \\ &= \frac{6}{9} \\ &= \frac{2}{3} \end{aligned}$$

**Answer:**

$$\frac{2}{3}$$

---

**(b)**

$$\frac{7}{8} \div \frac{21}{32}$$

**Step 1**

$$\frac{7}{8} \times \frac{32}{21}$$

**Step 2**

Cancel:

$$\begin{aligned} 32 \div 8 &= 4 \\ 21 \div 7 &= 3 \\ &= \frac{4}{3} \\ &= 1\frac{1}{3} \end{aligned}$$

**Answer:**

$$1\frac{1}{3}$$

---

**(c)**

$$2\frac{1}{4} \div 1\frac{1}{2}$$

Step 1: Convert to improper fractions

$$\begin{aligned} 2\frac{1}{4} &= \frac{9}{4} \\ 1\frac{1}{2} &= \frac{3}{2} \end{aligned}$$

Step 2

$$\frac{9}{4} \times \frac{2}{3}$$

Step 3

Cancel:

$$9 \div 3 = 3$$

$$\begin{aligned} &= \frac{3 \times 2}{4} \\ &= \frac{6}{4} \\ &= \frac{3}{2} \\ &= 1\frac{1}{2} \end{aligned}$$

Answer:

$$1\frac{1}{2}$$

---

(d)

$$3\frac{3}{5} \div 1\frac{1}{5}$$

Step 1

$$\begin{aligned} 3\frac{3}{5} &= \frac{18}{5} \\ 1\frac{1}{5} &= \frac{6}{5} \end{aligned}$$

Step 2

$$\frac{18}{5} \times \frac{5}{6}$$

Step 3

Cancel:

$$\begin{aligned} 18 \div 6 &= 3 \\ &= 3 \end{aligned}$$

Answer:

$$3$$

---

5.

A ribbon is  $3\frac{3}{4}$  m long. It is cut into pieces of length  $\frac{1}{8}$  m. How many pieces are obtained?

Given:

Length of ribbon

$$= 3\frac{3}{4} \text{ m}$$

Length of each piece

$$= \frac{1}{8} \text{ m}$$

Step 1: Convert mixed fraction

$$3\frac{3}{4} = \frac{15}{4}$$

Step 2: Divide

$$\begin{aligned} & \frac{15}{4} \div \frac{1}{8} \\ &= \frac{15}{4} \times \frac{8}{1} \end{aligned}$$

Step 3

$$\begin{aligned} &= \frac{120}{4} \\ &= 30 \end{aligned}$$

Answer:

30 pieces

---

6.

A tank contains  $5\frac{1}{2}$  litres of water. If each bottle holds  $\frac{1}{2}$  litre, how many bottles can be filled?

Given:

Water in tank

$$= 5\frac{1}{2} \text{ litres}$$

Capacity of each bottle

$$= \frac{1}{2} \text{ litre}$$

Step 1

$$5\frac{1}{2} = \frac{11}{2}$$

Step 2

$$\begin{aligned} & \frac{11}{2} \div \frac{1}{2} \\ &= \frac{11}{2} \times \frac{2}{1} \\ &= 11 \end{aligned}$$

Answer:

11 bottles

---

Competency-Based Questions

Assertion–Reason

Assertion–Reason Questions

Options:

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

---

1.

Assertion (A): Fractions that have the same denominator are called like fractions.

Reason (R): Because the parts of the whole are of equal size.

Solution:

- Assertion is true. Fractions having the same denominator are called like fractions.
- Reason is also true. The denominator tells into how many equal parts a whole is divided. If denominators are the same, the parts are of equal size.
- The reason correctly explains why such fractions are called like fractions.

Answer: (a) Both A and R are true and R is the correct explanation of A.

---

2.

Assertion (A):  $\frac{3}{4}$  and  $\frac{6}{8}$  are equivalent fractions.

Reason (R): Multiplying the numerator and denominator of a fraction by the same number gives an equivalent fraction.

Solution:

$$\frac{3}{4} \times \frac{2}{2} = \frac{6}{8}$$

- Assertion is true.
- Reason is true.
- The reason correctly explains how  $\frac{3}{4}$  becomes  $\frac{6}{8}$ .

Answer: (a) Both A and R are true and R is the correct explanation of A.

---

3.

Assertion (A): In a proper fraction, the numerator is greater than the denominator.

Reason (R): Because a proper fraction always represents a number greater than one.

Solution:

- A proper fraction has numerator less than denominator.

Example:  $\frac{3}{5}$

So Assertion (A) is false.

- A proper fraction represents a number less than 1, not greater than 1.

So Reason (R) is false.

Answer: Both A and R are false.

*(If only options (a)–(d) are given in the book, there appears to be a printing error because none of the four options matches “Both A and R are false.”)*

## B. Case-Study Based Questions

Given:

- Total cake slices = 8
- Riya ate 3 slices
- Aarav ate 2 slices
- Little brother ate 1 slice

---

### 1. What fraction of the cake did Riya eat?

Riya ate 3 out of 8 slices.

$$\text{Fraction eaten by Riya} = \frac{3}{8}$$

**Answer: (a)**  $\frac{3}{8}$

---

### 2. What fraction of the cake did Aarav eat?

Aarav ate 2 out of 8 slices.

$$\text{Fraction eaten by Aarav} = \frac{2}{8}$$

**Answer: (a)**  $\frac{2}{8}$

---

### 3. How many slices of the cake were left?

Slices eaten:

$$3 + 2 + 1 = 6$$

Slices left:

$$8 - 6 = 2$$

**Answer: (b)** 2

---

### 4. What fraction of the cake was eaten in total?

Total slices eaten:

$$3 + 2 + 1 = 6$$

Fraction eaten:

$$\frac{6}{8} = \frac{3}{4}$$

**Answer: (c)**  $\frac{6}{8}$

### Maths Booster

1. Answer = 2

Choose:

$$\frac{1}{3} + \frac{2}{3} + \frac{3}{4} + \frac{1}{4}$$

$$= 1 + 1 = 2$$

Path:  $1/3 \rightarrow 2/3 \rightarrow 3/4 \rightarrow 1/4$

---

2. Answer =  $2\frac{3}{4}$

Choose:

$$\begin{aligned} & \frac{2}{3} + \frac{3}{4} + \frac{1}{3} + \frac{1}{4} + \frac{3}{4} \\ &= \left(\frac{2}{3} + \frac{1}{3}\right) + \left(\frac{3}{4} + \frac{1}{4}\right) + \frac{3}{4} \\ &= 1 + 1 + \frac{3}{4} \\ &= 2\frac{3}{4} \end{aligned}$$

Path:  $2/3 \rightarrow 3/4 \rightarrow 1/3 \rightarrow 1/4 \rightarrow 3/4$

---

3. Answer =  $1\frac{1}{2}$

Choose:

$$\begin{aligned} & \frac{2}{5} + \frac{3}{5} + \frac{1}{4} + \frac{1}{4} \\ &= 1 + \frac{1}{2} \\ &= 1\frac{1}{2} \end{aligned}$$

Path:  $2/5 \rightarrow 3/5 \rightarrow 1/4 \rightarrow 1/4$

---

4. Answer =  $1\frac{3}{4}$

Choose:

$$\frac{5}{6} + \frac{1}{6} + \frac{1}{2} + \frac{1}{4}$$

$$= 1 + \frac{3}{4}$$

$$= 1\frac{3}{4}$$

Path:  $\frac{5}{6} \rightarrow \frac{1}{6} \rightarrow \frac{1}{2} \rightarrow \frac{1}{4}$

---

5. Answer = 3

Choose all fractions:

$$\frac{1}{3} + \frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \frac{1}{2} + \frac{1}{4}$$

$$= \left(\frac{1}{3} + \frac{2}{3}\right) + \left(\frac{1}{2} + \frac{1}{2}\right) + \left(\frac{3}{4} + \frac{1}{4}\right)$$

$$= 1 + 1 + 1$$

$$= 3$$

Path:  $\frac{1}{3} \rightarrow \frac{2}{3} \rightarrow \frac{1}{2} \rightarrow \frac{1}{2} \rightarrow \frac{3}{4} \rightarrow \frac{1}{4}$

---

6. Answer =  $3\frac{2}{3}$

Choose all fractions:

$$\frac{2}{5} + \frac{1}{3} + \frac{2}{3} + \frac{1}{5} + \frac{3}{5} + \frac{1}{3}$$

$$= \left(\frac{2}{5} + \frac{3}{5}\right) + \left(\frac{1}{5}\right) + \left(\frac{1}{3} + \frac{2}{3}\right) + \frac{1}{3}$$

$$= 1 + \frac{1}{5} + 1 + \frac{1}{3}$$

$$= 2 + \frac{8}{15}$$

This does not give  $3\frac{2}{3}$ , so the actual path must include repeated connected boxes. The worksheet is intended as a path puzzle, and the exact path lines are difficult to determine from the image. The first five answers above are correct and complete.

### Ch -3: Angles as Turns

#### Practice Time 3.1

#### 1. Match the Following

Column A	Column B
(a) Supplement of $105^\circ$	(viii) $75^\circ$
(b) Complement of $42^\circ$	(x) $48^\circ$
(c) Instrument to measure angles	(v) <b>Protractor</b>
(d) Instrument to draw straight line	(ix) <b>Ruler</b>
(e) Angle less than $90^\circ$	(iv) <b>Acute angle</b>
(f) Angle measuring $180^\circ$	(vii) <b>Straight angle</b>
(g) Unit to measure angles	(vi) <b>Degrees</b>
(h) Angle more than $90^\circ$ but less than $180^\circ$	(i) <b>Obtuse angle</b>
(i) Angle measuring $90^\circ$	(iii) <b>Right angle</b>
(j) Angle more than $180^\circ$ but less than $360^\circ$	(ii) <b>Reflex angle</b>

---

#### 2. Identify each of the following angles

(a)

Angle is less than  $90^\circ$

**Acute angle**

(b)

Angle is more than  $90^\circ$  but less than  $180^\circ$

**Obtuse angle**

(c)

**Right angle**

(d)

Angle is less than  $90^\circ$

## Acute angle

---

### 3. Find the complement

Formula:

$$\text{Complement} = 90^\circ - \text{Angle}$$

(a)  $35^\circ$

$$90^\circ - 35^\circ = 55^\circ$$

$55^\circ$

---

(b)  $45^\circ$

$$90^\circ - 45^\circ = 45^\circ$$

$45^\circ$

---

(c)  $15^\circ$

$$90^\circ - 15^\circ = 75^\circ$$

$75^\circ$

---

(d)  $32^\circ$

$$90^\circ - 32^\circ = 58^\circ$$

$58^\circ$

---

### 4. Find the supplement

Formula:

$$\text{Supplement} = 180^\circ - \text{Angle}$$

(a)  $115^\circ$

$$180^\circ - 115^\circ = 65^\circ$$

$65^\circ$

---

(b)  $135^\circ$

$$180^\circ - 135^\circ = 45^\circ$$

$45^\circ$

---

(c)  $72^\circ$

$$180^\circ - 72^\circ = 108^\circ$$

$108^\circ$

---

(d)  $108^\circ$

$$180^\circ - 108^\circ = 72^\circ$$

$72^\circ$

---

**5. Draw a line segment  $CD = 5$  cm and at  $C$  draw  $\angle BCD = 135^\circ$**

Construction question.

Steps:

1. Draw line segment  **$CD = 5$  cm**.
  2. Place the protractor at  **$C$** .
  3. Mark  **$135^\circ$** .
  4. Draw ray  **$CB$**  through the mark.
  5.  **$\angle BCD = 135^\circ$** .
-

## 6. Measure the following angles

Approximate values from the figure:

(a)

$90^\circ$

---

(b)

$120^\circ$  (approximately)

---

(c)

$30^\circ$  (approximately)

---

(d)

$60^\circ$  (approximately)

---

## 7. Word Problem

Two angles are supplementary.

Sum =

$180^\circ$

Let larger angle =  $x$

Smaller angle =  $x - 30^\circ$

$$x + (x - 30) = 180$$

$$2x - 30 = 180$$

$$2x = 210$$

$$x = 105^\circ$$

Smaller angle:

$$105^\circ - 30^\circ = 75^\circ$$

**Answer:**

Larger angle =  $105^\circ$

Smaller angle =  $75^\circ$

**Practice Time 3.2 s**

**1(a)**

Rotate the key  $90^\circ$  clockwise about point P.

The key will lie horizontally with the circular head on the **right side** of point P.

---

**1(b)**

Rotate the figure  $180^\circ$  anticlockwise about point Q.

After half-turn, the figure becomes upside down on the opposite side of Q.

---

**1(c)**

Rotate the oval figure  $90^\circ$  clockwise about point R.

The horizontal oval becomes **vertical** after rotation.

---

**1(d)**

Rotate the figure  $180^\circ$  anticlockwise about point S.

After half-turn, the figure appears inverted (upside down) on the opposite side of S.

---

**NCERT Corner**

This is a practical activity, so there is no fixed written answer.

**Activity: Making a Paper Fan**

Materials:

- Rectangular paper
- Ice-cream sticks
- Glue

Steps:

1. Fold the paper in equal strips (accordion fold).
2. Fold it in half.
3. Paste the ends together to form a fan shape.
4. Attach ice-cream sticks at the sides.
5. Open the folds to make a paper fan.

Activity-based question — perform and show in class.

### 1. Making a Paper Fan

This is an **activity-based question**.

You have to:

1. Take a rectangular paper.
2. Fold it every 2 cm like a fan.
3. Paste ice-cream sticks.
4. Open and close the fan.
5. Observe the angles formed.

You will notice:

- Small opening → **Acute angle**
- Quarter turn → **Right angle**
- Wide opening → **Obtuse angle**
- Half turn → **Straight angle**

### 2. Identify the angles in the house

From the figure:

- A – **Acute angle**
- B – **Right angle**
- C – **Acute angle**
- D – **Acute angle**
- E – **Obtuse angle**
- F – **Acute angle**
- G – **Right angle**
- H – **Obtuse angle**

### 3. Make a 5-sided shape

Activity Question

Draw any pentagon having:

- 2 Right Angles
- 2 Obtuse Angles
- 1 Acute Angle

(No fixed answer.)

### 4. Gymnast Angles

Looking left to right, top row then bottom row:

1. **Acute angle**
2. **Right angle**
3. **Obtuse angle**
4. **Straight angle**

### 5. Guess the measures

Approximate answers from the figures:

**Figure Measure Type**

1	45°	Acute
2	90°	Right
3	60°	Acute
4	120°	Obtuse
5	90°	Right
6	135°	Obtuse

---

### 6. Guess the turns

**(a) Given**

$$\frac{1}{4} + \frac{1}{8} = \frac{3}{8}$$

**3/8 turn**

---

**(b)**

$$\frac{1}{4} \text{ turn}$$

**1/4 turn**

---

**(c)**

$$\frac{1}{4} + \frac{1}{4} = \frac{1}{2}$$

**1/2 turn**

---

**(d)**

$$\frac{1}{4} + \frac{1}{8} + \frac{1}{8} = \frac{1}{2}$$

**1/2 turn**

---

## **7. Measure each angle**

**(a)**

F = Acute angle

G = Obtuse angle

F' = Right angle

G' = Obtuse angle

---

**(b)**

D = Acute angle

E = Obtuse angle

D' = Acute angle

E' = Obtuse angle

---

**(c)**

A = Acute angle

B = Acute angle

C = Obtuse angle

---

### **8. Draw angles for given turns**

Use:

$$\text{Angle} = \text{Turn} \times 360^\circ$$

**(a)**

$$\frac{1}{2} \times 360 = 180^\circ$$

180°

---

**(b)**

$$\frac{1}{4} \times 360 = 90^\circ$$

90°

---

**(c)**

$$\frac{1}{4} \times 360 = 90^\circ$$

90°

---

(d)

$$\frac{1}{12} \times 360 = 30^\circ$$

30°

---

(e)

$$\frac{1}{8} \times 360 = 45^\circ$$

45°

---

### 9. Draw the following turns

Turn	Angle
1/2 turn	180°
1/4 turn	90°
2/4 turn	180°
1/6 turn	60°
4/6 turn	240°
3/12 turn	90°
1/2 + 1/4 turn	270°
1/8 + 1/6 turn	45° + 60° = 105°

### 10. Minute Hand Questions

A full circle = 60 minutes

(a)

15 minutes

$$15/60 = \frac{1}{4}$$

**1/4 turn**

---

**(b)**

30 minutes

$$30/60 = \frac{1}{2}$$

**1/2 turn**

---

**(c)**

45 minutes

$$45/60 = \frac{3}{4}$$

**3/4 turn**

---

**(d)**

$$\frac{1}{12} \times 60 = 5$$

**5 minutes**

---

**(e)**

Full circle

60 minutes

**60 minutes**

---

(f)

$$\frac{1}{6} \times 60 = 10$$

**10 minutes**

---

(g)

$$\frac{4}{12} \times 60 = 20$$

**20 minutes**

---

### **Fun With Turns**

<b>Starting Direction</b>	<b>Turn</b>	<b>Ending Direction</b>
North	Two right angles clockwise	<b>South</b>
South	Two right angles anti-clockwise	<b>North</b>
East	Four right angles anti-clockwise	<b>East</b>
West	Four right angles clockwise	<b>West</b>
North	Five right angles clockwise	<b>East</b>
South	3 right angles clockwise + 1/2 right angle clockwise + 1/2 right angle clockwise	<b>East</b>
West	4 right angles clockwise + 4½ right angles anti-clockwise	<b>South</b>

### **2. Padma Question**

Padma is facing the toy shop.

**A half turn clockwise = 180°.**

So she will face the place exactly opposite the toy shop.

**Answer:** She will face the place opposite the toy shop.

Another way to face the same place:

**Half turn anti-clockwise ( $180^\circ$ ).**

## **EXAM TIME**

### **A. Multiple Choice Questions (MCQs)**

#### **1. A full turn equals:**

A full circle =  $360^\circ$

**Answer: (d)  $360^\circ$**

---

#### **2. A quarter-turn anticlockwise from East points to:**

East  $\rightarrow$  North ( $\frac{1}{4}$  turn anticlockwise)

**Answer: (a) North**

---

#### **3. $115^\circ$ is an:**

$90^\circ < 115^\circ < 180^\circ$

So it is an **obtuse angle**.

**Answer: (c) Obtuse angle**

---

#### **4. The complement of $37^\circ$ is:**

Complement =  $90^\circ - \text{angle}$

=  $90^\circ - 37^\circ$

=  $53^\circ$

**Answer: (b)  $53^\circ$**

---

#### **5. The supplement of $154^\circ$ is:**

Supplement =  $180^\circ - \text{angle}$

$$= 180^\circ - 154^\circ$$

$$= 26^\circ$$

**Answer: (a)  $26^\circ$**

---

**6. Opposite rays form a:**

Opposite rays make a straight line.

Angle formed =  $180^\circ$

**Answer: (c) Straight angle**

---

**7. In 15 minutes the minute hand turns:**

60 minutes = full turn

15 minutes =  $15/60$

=  $1/4$  turn

=  $90^\circ$

**Answer: (c)  $90^\circ$**

---

**8. A rotation of  $270^\circ$  equals:**

$270^\circ = 3 \times 90^\circ$

= three quarter-turns

**Answer: (b) Three quarter-turn**

---

**B. Fill in the Blanks**

**1.**

The point where two arms meet is called the **vertex**.

Vertex

---

**2.**

Angles are measured in **degrees** and written with the symbol  $^{\circ}$ .

Degrees,  $^{\circ}$

---

**3.**

A right angle measures  **$90^{\circ}$** .

$90^{\circ}$

---

**4.**

A straight angle lies between  **$180^{\circ}$**  and  **$180^{\circ}$** .

$180^{\circ}$ ,  $180^{\circ}$

---

**5.**

Complementary angles add up to  **$90^{\circ}$** .

$90^{\circ}$

---

**6.**

Turning the minute hand from 12 to 6 is a **half-turn**.

Half-turn

---

**7.**

While measuring, align the protractor's **baseline** with one arm of the angle.

Baseline

---

**8.**

From South, a half-turn clockwise points to **North**.

North

---

### C. Write True or False

1.  $45^\circ$  and  $45^\circ$  are supplementary.

$$45^\circ + 45^\circ = 90^\circ$$

Not  $180^\circ$ .

False

---

2. Changing the size of an arm does not change an angle's size.

True

---

3. Every acute angle is less than  $90^\circ$ .

True

---

4. Two right angles make a straight angle.

$$90^\circ + 90^\circ = 180^\circ$$

True

---

5. Turning  $30^\circ$  twice equals  $60^\circ$ .

$$30^\circ + 30^\circ = 60^\circ$$

True

---

6. A reflex angle is more than  $180^\circ$  and less than  $360^\circ$ .

True

---

### D. Very Short Answer Questions

1. Measure of a quarter-turn

$$\frac{1}{4} \times 360^\circ$$

$$= 90^\circ$$

90°

---

**2. Name the angle of 0°**

Zero angle

---

**3. How many right angles make a full turn?**

$$360^\circ \div 90^\circ$$

$$= 4$$

4

---

**4. Which letter must be in the middle while naming  $\angle ABC$ ?**

Middle letter is always the vertex.

B

---

**5. Complement of 70°**

$$90^\circ - 70^\circ$$

$$= 20^\circ$$

20°

---

**6. Instrument used to measure angles**

Protractor

---

**E. Short Answer Questions**

**1(a) Complement of 24°**

$$90^\circ - 24^\circ$$

$$= 66^\circ$$

66°

---

**1(b) Supplement of  $124^\circ$**

$$180^\circ - 124^\circ$$

$$= 56^\circ$$

$$56^\circ$$

---

**2. From North to West clockwise**

North  $\rightarrow$  East  $\rightarrow$  South  $\rightarrow$  West

$$= 270^\circ$$

Since angle  $> 180^\circ$

$270^\circ$ , Reflex angle

---

**3. Pointer faces East. After  $\frac{3}{4}$  turn anticlockwise it points to?**

East  $\rightarrow$  North ( $\frac{1}{4}$ )

North  $\rightarrow$  West ( $\frac{1}{2}$ )

West  $\rightarrow$  South ( $\frac{3}{4}$ )

South

---

**4. Minute hand moves from 12 to 8**

Each number gap =  $30^\circ$

$$8 \text{ gaps} = 8 \times 30^\circ$$

$$= 240^\circ$$

Since  $180^\circ < 240^\circ < 360^\circ$

$240^\circ$ , Reflex angle

---

**5. An angle measures two right angles plus a quarter-turn**

Two right angles =  $180^\circ$

Quarter-turn =  $90^\circ$

Total =  $180^\circ + 90^\circ$

=  $270^\circ$

$270^\circ$ , Reflex angle

## F. Long Answer Questions

### 1. Using a protractor, construct $60^\circ$ and $120^\circ$

#### (a) Construct $60^\circ$

##### Steps:

1. Draw a ray OA.
2. Place the centre of the protractor at O.
3. Align the baseline with OA.
4. Mark the point at  $60^\circ$ .
5. Name the point B.
6. Join O and B.

$\angle AOB = 60^\circ$

---

#### (b) Construct $120^\circ$

##### Steps:

1. Draw a ray OA.
2. Place the centre of the protractor at O.
3. Align the baseline with OA.
4. Mark the point at  $120^\circ$ .
5. Name the point B.
6. Join O and B.

$\angle AOB = 120^\circ$

### 2. Two angles form a linear pair. One angle is $36^\circ$ more than the other. Find both angles and classify the larger one.

##### Solution:

Let the smaller angle be  $x^\circ$ .

Then the larger angle =  $(x + 36)^\circ$

Since they form a linear pair:

$$x + (x + 36) = 180$$

$$2x + 36 = 180$$

$$2x = 144$$

$$x = 72$$

Larger angle:

$$72 + 36 = 108^\circ$$

**Angles:**  $72^\circ$  and  $108^\circ$

**Classification of the larger angle:**  $108^\circ$  is an **obtuse angle**.

---

**3. A signboard arrow turns  $45^\circ$  clockwise, then  $135^\circ$  clockwise, then  $90^\circ$  anticlockwise. From an initial North direction, find:**

**(a) Net rotation**

Clockwise rotations:

$$45^\circ + 135^\circ = 180^\circ$$

Anticlockwise rotation:

$$90^\circ$$

Net rotation:

$$180^\circ - 90^\circ = 90^\circ$$

**Net rotation =  $90^\circ$  clockwise**

---

**(b) Final direction**

Starting from **North**:

- 45° clockwise → North-East
- 135° more clockwise → South
- 90° anticlockwise from South → East

**Final direction = East**

---

**(c) Whether the net rotation is acute/obtuse/right/straight/reflex**

Net rotation = **90°**

A 90° angle is a **right angle**.

---

### Competency-Based Questions

#### A. Assertion–Reason Questions

1.

**Assertion (A):** A right angle equals a quarter-turn. ✓ True

**Reason (R):** A full turn is 360°. ✓ True

Since

$$\frac{360^\circ}{4} = 90^\circ$$

The reason correctly explains the assertion.

**Answer: (a)** Both A and R are true and R is the correct explanation.

---

2.

**Assertion (A):** Every angle greater than 90° is a reflex angle. ✗ False

(Angles between 90° and 180° are obtuse.)

**Reason (R):** A reflex angle is between 180° and 360°. ✓ True

**Answer: (d)** A is false but R is true.

---

3.

**Assertion (A):** The complement of an acute angle is always acute. ✓ True

Example:

$$90^\circ - 30^\circ = 60^\circ$$

$60^\circ$  is acute.

**Reason (R):** Complementary angles add up to  $180^\circ$ . ✗ False

(They add up to  $90^\circ$ .)

**Answer: (c)** A is true but R is false.

---

4.

**Assertion (A):** The protractor's baseline must be along one arm for correct measurement. ✓ True

**Reason (R):** Misalignment gives a wrong reading. ✓ True

Reason explains assertion.

**Answer: (a)** Both A and R are true and R is the correct explanation.

---

## B. Case Study Based Questions

### Case 1 – Drill Circle

Students start facing **East**.

#### Step 1: Half-turn clockwise

$$\frac{1}{2} \text{ turn} = 180^\circ$$

Type = Straight angle

East → West

---

#### Step 2: Quarter-turn anticlockwise

$$\frac{1}{4} \text{ turn} = 90^\circ$$

Type = Right angle

West → South

---

### Step 3: Three-quarter-turn clockwise

$$\frac{3}{4} \text{ turn} = 270^\circ$$

Type = Reflex angle

South → West → North → East

Final direction = East

---

### (a) Degree measure and type

#### Step Measure Type

1	180°	Straight
2	90°	Right
3	270°	Reflex

---

### (b) Net rotation

Clockwise positive:

$$\begin{aligned} &+180^\circ - 90^\circ + 270^\circ \\ &= 360^\circ \end{aligned}$$

Net rotation = **360° clockwise**

---

### (c) Final direction

After a complete turn, they again face:

**East**

---

**Case 2 – Carnival Spinner**

**(a)**

Spinner moves from  $20^\circ$  to  $200^\circ$  clockwise

$$200^\circ - 20^\circ = 180^\circ$$

Rotation =  **$180^\circ$**

Type = **Straight angle**

---

**(b)**

Another  $150^\circ$  clockwise

$$180^\circ + 150^\circ = 330^\circ$$

Number of right angles:

$$330^\circ \div 90^\circ = 3\frac{2}{3}$$

Total rotation =  **$330^\circ$**

Contains **3 complete right angles**

---

**(c)**

Shortest path from  $350^\circ$  to  $20^\circ$

Clockwise:

$$360^\circ - 350^\circ = 10^\circ$$

$$10^\circ + 20^\circ = 30^\circ$$

Anticlockwise would be:

$$350^\circ - 20^\circ = 330^\circ$$

Shortest = clockwise

**30° clockwise**

---

### Maths Booster

Observe clock at different times:

Time	Type of Angle
6:05	Acute
6:10	Acute
6:15	Right
6:20	Obtuse
6:25	Obtuse
6:30	Straight

### CH – 4: We the Travellers-II

#### Practice Time 4.1 – Add the Following

(a)

$$7562 + 1434 = 8996$$

(b)

$$5898 + 8921 = 14819$$

(c)

$$6239 + 8422 = 14661$$

(d)

$$9965 + 5222 = 15187$$

(e)

$$62821 + 15157 = 77978$$

**(f)**

$$58824 + 21153 = \mathbf{79977}$$

**(g)**

$$56626 + 15155 = \mathbf{71781}$$

**(h)**

$$77777 + 33333 = \mathbf{111110}$$

## **Practice Time 4.2**

### **1. Name the Property**

(a)  $11 \times (2111 + 6212) = (11 \times 2111) + (11 \times 6212)$

#### **Distributive Property**

(b)  $4110 + 6000 = 6000 + 4110$

#### **Commutative Property**

(c)  $(1005 + 7000) + 8000 = 1005 + (7000 + 8000)$

#### **Associative Property**

(d)  $7600 + 0 = 7600$

#### **Additive Identity Property**

### **2. Match the Following**

1 → C (Distributive Property)

2 → A (Associative Property)

3 → D (Identity Property)

4 → B (Commutative Property)

### **3. Complete and Name the Property**

(a)  $1112 + 1800 = 1800 + \mathbf{1112}$

Property: **Commutative Property**

(b)  $6004 + 0 = \mathbf{6004}$

Property: **Identity Property**

$$(c) 0 + 1111 = \mathbf{1111}$$

Property: **Identity Property**

$$(d) 10 \times (1600 + 1000)$$

$$= (\mathbf{10 \times 1600}) + (\mathbf{10 \times 1000})$$

Property: **Distributive Property**

#### **4. Verify**

$$(4526 + 7875) + 4546$$

$$= 12401 + 4546$$

$$= \mathbf{16947}$$

$$4526 + (7875 + 4546)$$

$$= 4526 + 12421$$

$$= \mathbf{16947}$$

$$\text{LHS} = \text{RHS}$$

Verified (Associative Property)

#### **Practice Time 4.3**

##### **1. Library Books**

Given:

- Storybooks = 26,450
- Science books = 13,325

To find: Total books purchased

Solution

$$26,450$$

$$+ 13,325$$

-----

$$39,775$$

-----

Step 1: Add ones  $\rightarrow 0 + 5 = 5$

Step 2: Add tens  $\rightarrow 5 + 2 = 7$

Step 3: Add hundreds  $\rightarrow 4 + 3 = 7$

Step 4: Add thousands  $\rightarrow 6 + 3 = 9$

Step 5: Add ten thousands  $\rightarrow 2 + 1 = 3$

Answer

The library purchased 39,775 books in total.

---

## 2. Quantity of Crops Harvested

Given:

- Wheat = 42,315 kg
- Rice = 17,422 kg

To find: Total crops harvested

Solution

$$\begin{array}{r} 42,315 \\ + 17,422 \\ \hline 59,737 \\ \hline \end{array}$$

Step 1: Ones  $\rightarrow 5 + 2 = 7$

Step 2: Tens  $\rightarrow 1 + 2 = 3$

Step 3: Hundreds  $\rightarrow 3 + 4 = 7$

Step 4: Thousands  $\rightarrow 2 + 7 = 9$

Step 5: Ten thousands  $\rightarrow 4 + 1 = 5$

Answer

The farmer harvested 59,737 kg of crops in total.

---

## 3. Stadium Seating Capacity

Given:

- Lower stands = 34,512 people
- Upper stands = 21,478 people

To find: Total seating capacity

Solution

$$\begin{array}{r} 34,512 \\ + 21,478 \\ \hline 55,990 \\ \hline \end{array}$$

Step 1: Ones  $\rightarrow 2 + 8 = 10$ , write 0 carry 1

Step 2: Tens  $\rightarrow 1 + 1 + 7 = 9$

Step 3: Hundreds  $\rightarrow 5 + 4 = 9$

Step 4: Thousands  $\rightarrow 4 + 1 = 5$

Step 5: Ten thousands  $\rightarrow 3 + 2 = 5$

Answer

The total seating capacity of the stadium is 55,990 people.

---

#### 4. Balls Sold by Sports Shop

Given:

- Cricket balls = 36,124
- Footballs = 14,256

To find: Total balls sold

Solution

$$\begin{array}{r} 36,124 \\ + 14,256 \\ \hline 50,380 \\ \hline \end{array}$$

Step 1: Ones  $\rightarrow 4 + 6 = 10$ , write 0 carry 1

Step 2: Tens  $\rightarrow 2 + 5 + 1 = 8$

Step 3: Hundreds  $\rightarrow 1 + 2 = 3$

Step 4: Thousands  $\rightarrow 6 + 4 = 10$ , write 0 carry 1

Step 5: Ten thousands  $\rightarrow 3 + 1 + 1 = 5$

Answer

The sports shop sold 50,380 balls in total.

---

### 5. Stationery Items Distributed

Given:

- Notebooks = 29,635
- Pencils = 18,205

To find: Total stationery items

Solution

$$\begin{array}{r} 29,635 \\ + 18,205 \\ \hline 47,840 \\ \hline \end{array}$$

Step 1: Ones  $\rightarrow 5 + 5 = 10$ , write 0 carry 1

Step 2: Tens  $\rightarrow 3 + 0 + 1 = 4$

Step 3: Hundreds  $\rightarrow 6 + 2 = 8$

Step 4: Thousands  $\rightarrow 9 + 8 = 17$ , write 7 carry 1

Step 5: Ten thousands  $\rightarrow 2 + 1 + 1 = 4$

Answer

The charity group distributed 47,840 stationery items in total.

---

### 6. Bicycles Sold in Two Years

Given:

- Bicycles sold in 2020 = 9,643
- Bicycles sold in 2021 = 3,578

To find: Total bicycles sold

Solution

$$\begin{array}{r} 9,643 \\ + 3,578 \\ \hline \end{array}$$

13,221

-----

Step 1: Ones  $\rightarrow 3 + 8 = 11$ , write 1 carry 1

Step 2: Tens  $\rightarrow 4 + 7 + 1 = 12$ , write 2 carry 1

Step 3: Hundreds  $\rightarrow 6 + 5 + 1 = 12$ , write 2 carry 1

Step 4: Thousands  $\rightarrow 9 + 3 + 1 = 13$

Answer

The dealer sold 13,221 bicycles in the two years.

---

## 7. Balloons Produced by Factory

Given:

- White balloon packets = 55,368
- Red balloon packets = 76,288

To find: Total balloon packets produced

Solution

55,368  
+ 76,288

-----

131,656

-----

Step 1: Ones  $\rightarrow 8 + 8 = 16$ , write 6 carry 1

Step 2: Tens  $\rightarrow 6 + 8 + 1 = 15$ , write 5 carry 1

Step 3: Hundreds  $\rightarrow 3 + 2 + 1 = 6$

Step 4: Thousands  $\rightarrow 5 + 6 = 11$ , write 1 carry 1

Step 5: Ten thousands  $\rightarrow 5 + 7 + 1 = 13$

Answer

The factory produces 1,31,656 balloon packets in total.

## Practice Time 4.4

### 1. Mark Even or Odd

(a)  $15 + 16 = 31 \rightarrow$  **Odd**

$$(b) 21 + 22 + 23 = 66 \rightarrow \text{Even}$$

$$(c) 8 + 9 + 10 + 11 = 38 \rightarrow \text{Even}$$

$$(d) 5 + 10 + 11 + 4 = 30 \rightarrow \text{Even}$$

## 2. Fixed Difference

$$(a) 5 \text{ consecutive numbers} \rightarrow \text{difference} = 5$$

$$(b) 6 \text{ consecutive numbers} \rightarrow \text{difference} = 6$$

## 3. Find Each Sum

$$(a) 67 + 68 + 69$$

$$= 68 \times 3$$

$$= \mathbf{204}$$

---

$$(b) 24 + 25 + 26 + 27$$

$$= (24 + 27) + (25 + 26)$$

$$= 51 + 51$$

$$= \mathbf{102}$$

---

$$(c) 48 + 49 + 50 + 51 + 52$$

$$= 50 \times 5$$

$$= \mathbf{250}$$

---

$$(d) 237 + 238 + 239 + 240 + 241 + 242$$

$$= (237 + 242) + (238 + 241) + (239 + 240)$$

$$= 479 + 479 + 479$$

$$= \mathbf{1437}$$

---

### Practice Time 4.5

(a)

$$8245 - 5124 = 3121$$

(b)

$$7555 - 5345 = 2210$$

(c)

$$47825 - 26415 = 21410$$

(d)

$$54231 - 52210 = 2021$$

(e)

$$8935 - 7898 = 1037$$

(f)

$$3793 - 1251 = 2542$$

(g)

$$85964 - 67979 = 17985$$

(h)

$$59550 - 58572 = 978$$

(i)

$$95543 - 88123 = 7420$$

(j)

$$86969 - 13564 = 73405$$

---

### Practice Time 4.6

#### 1. Simplify

$$\begin{aligned} \text{(a)} \quad & (85000 - 30000) - 20000 \\ & = 55000 - 20000 \\ & = \mathbf{35000} \end{aligned}$$

---

---

$$\begin{aligned} & \text{(b) } (90400 - 50005) - 10000 \\ & = 40395 - 10000 \\ & = \mathbf{30395} \end{aligned}$$

---

$$\begin{aligned} & \text{(c) } 12000 - 0 \\ & = \mathbf{12000} \end{aligned}$$

---

## 2. Complete

$$\text{(a) } 61212 - 13000 = \mathbf{48212}$$

$$\text{(b) } 80202 - 0 = \mathbf{80202}$$

$$\text{(c) } 10 \times (54000 - 49000)$$

$$= 10 \times 5000$$

$$= \mathbf{50000}$$

---

## 3. Prove

(a)

$$65432 - 43210 = \mathbf{22222}$$

$$43210 - 65432 = \mathbf{-22222}$$

Not equal.

---

(b)

$$(76500 - 41200) - 12300$$

$$= 35300 - 12300$$

$$= \mathbf{23000}$$

$$76500 - (41200 - 12300)$$

$$= 76500 - 28900$$

$$= 47600$$

Not equal.

---

### Practice Time 4.7

#### 1. Soap Factory Production

Given:

- Soaps produced in first year = 56,452
- Soaps produced in second year = 65,124

To find: How many more soaps were produced in the second year?

Solution

$$\begin{array}{r} 65,124 \\ - 56,452 \\ \hline 8,672 \end{array}$$

Step 1: Ones  $\rightarrow 4 - 2 = 2$

Step 2: Tens  $\rightarrow 2 - 5$  is not possible, borrow 1 hundred.

$$12 - 5 = 7$$

Step 3: Hundreds  $\rightarrow 0 - 4$  is not possible, borrow 1 thousand.

$$10 - 4 = 6$$

Step 4: Thousands  $\rightarrow 4 - 6$  is not possible, borrow 1 ten thousand.

$$14 - 6 = 8$$

Step 5: Ten thousands  $\rightarrow 5 - 5 = 0$

Answer

The factory produced 8,672 more soaps in the second year.

---

#### 2. Election Votes

Given:

- Total votes = 48,520
- Votes for Candidate 1 = 21,456
- Votes for Candidate 2 = 15,923

Step 1: Find votes received by first two candidates

$$\begin{array}{r} 21,456 \\ + 15,923 \\ \hline 37,379 \\ \hline \end{array}$$

Step 2: Find votes received by third candidate

$$\begin{array}{r} 48,520 \\ - 37,379 \\ \hline 11,141 \\ \hline \end{array}$$

Answer

11,141 votes were polled in favour of the third candidate.

---

### 3. Mr. Dixit's Savings

Given:

- Annual income = ₹75,088
- Annual expenditure = ₹56,008

Solution

$$\begin{array}{r} 75,088 \\ - 56,008 \\ \hline 19,080 \\ \hline \end{array}$$

Step 1: Ones  $\rightarrow 8 - 8 = 0$

Step 2: Tens  $\rightarrow 8 - 0 = 8$

Step 3: Hundreds  $\rightarrow 0 - 0 = 0$

Step 4: Thousands  $\rightarrow 5 - 6$  is not possible, borrow.

$$15 - 6 = 9$$

Step 5: Ten thousands  $\rightarrow 6 - 5 = 1$

Answer

Mr. Dixit saved ₹19,080.

---

#### 4. Find the Number

Given:

- A number  $- 58,120 = 39,531$

Solution

To find the number, add:

$$\begin{array}{r} 58,120 \\ + 39,531 \\ \hline 97,651 \\ \hline \end{array}$$

Answer

The number is 97,651.

---

#### 5. Eggs Remaining

Given:

- Total eggs produced = 61,548
- Eggs sold = 5,050

Solution

$$\begin{array}{r} 61,548 \\ - 5,050 \\ \hline 56,498 \\ \hline \end{array}$$

Answer

56,498 eggs remained.

---

#### 6. Find the Number

Given:

A number exceeds 63,484 by 12,165.

Solution

$$\begin{array}{r} 63,484 \\ + 12,165 \\ \hline 75,649 \\ \hline \end{array}$$

Answer

The number is 75,649.

---

7. Subtract the smallest 5-digit number from the greatest 5-digit number

Greatest 5-digit number = 99,999

Smallest 5-digit number = 10,000

Solution

$$\begin{array}{r} 99,999 \\ - 10,000 \\ \hline 89,999 \\ \hline \end{array}$$

Answer

89,999

---

8. Potatoes Left in Storage

Given:

- Potatoes in storage = 86,530 kg
- Potatoes sold = 24,892 kg

Solution

$$\begin{array}{r} 86,530 \\ - 24,892 \\ \hline 61,638 \\ \hline \end{array}$$

Stepwise Borrowing:

- Ones:  $10 - 2 = 8$
- Tens:  $12 - 9 = 3$
- Hundreds:  $14 - 8 = 6$
- Thousands:  $5 - 4 = 1$
- Ten thousands:  $8 - 2 = 6$

Answer

61,638 kg of potatoes are left in storage.

---

9. Who is Correct?

Statement:

Sheena said:  $0 - 13,113 = 13,113 - 0$ .

Check

$$0 - 13,113 = -13,113$$

but

$$13,113 - 0 = 13,113$$

Since

$$-13,113 \neq 13,113$$

Answer

Arun is correct. Sheena is wrong because subtracting a number from 0 gives a negative number, while subtracting 0 from a number leaves the number unchanged.

---

10. Radha's Donation

Given:

- Prize money = ₹80,000
- Donation = ₹55,000

(a) Amount left with Radha

$$\begin{array}{r} 80,000 \\ - 55,000 \\ \hline 25,000 \\ \hline \end{array}$$

Answer (a)

₹25,000

(b) What value is depicted?

Answer (b)

Kindness, generosity, helping others, and social responsibility. Radha donated money to support the education of poor children, showing concern for others and contributing to society.

### Practice Time 4.8

#### 1. Find the Difference

(a)  $55555 - 45545 = 10010$

(b)  $45525 - 25455 = 20070$

(c)  $35454 - 12242 = 23212$

(d)  $52455 - 24235 = 28220$

---

#### 2. Write the Minuend, Subtrahend and Difference

(a)

Minuend = **54,235**

Subtrahend = **25,234**

Difference = **29,001**

---

(b)

Minuend = **53,524**

Subtrahend = **21,235**

$$\text{Difference} = 32,289$$

---

(c)

$$\text{Minuend} = 45,555$$

$$\text{Subtrahend} = 34,445$$

$$\text{Difference} = 11,110$$

### **Practice Time 4.9**

#### **1. Fill in the blanks**

(a)  $73 - 29 = 44$

(b)  $75 + 46 = 121$

(c)  $315 = 228 + 87$

(d)  $800 - 343 = 457$

(e)  $1000 - 628 = 372$

(f)  $563 - 345 = 218$

---

#### **2. Make the Fact Family**

##### **(a) Numbers: 96, 54, 42**

Additions:

- $54 + 42 = 96$

- $42 + 54 = 96$

Subtractions:

- $96 - 54 = 42$

- $96 - 42 = 54$

##### **(b) Numbers: 145, 92, 53**

Additions:

- $92 + 53 = 145$

- $53 + 92 = 145$

Subtractions:

- $145 - 92 = 53$

- $145 - 53 = 92$

---

### 3. Write the two related subtraction sentences

**(a)  $38 + 47 = 85$**

- $85 - 38 = 47$

- $85 - 47 = 38$

**(b)  $256 + 319 = 575$**

- $575 - 256 = 319$

- $575 - 319 = 256$

---

### 4. Write the two related addition sentences

**(a)  $940 - 365 = 575$**

- $365 + 575 = 940$

- $575 + 365 = 940$

**(b)  $703 - 289 = 414$**

- $289 + 414 = 703$

- $414 + 289 = 703$

---

### 5. Word Problems

**(a)**

Amount paid = ₹1000

Bill = ₹754

Change returned =  $1000 - 754 = ₹246$

**(b)**

Final reading = 46,792 km

Initial reading = 46,215 km

Distance travelled =  $46,792 - 46,215 = 577$  km

**(c)**

Box capacity = 850 marbles

Already inside = 563 marbles

More needed =  $850 - 563 = 287$  marbles

---

### Practice Time 4.10

#### 1. Round off to the nearest 10

(a)  $14,340 = 14,340$

(b)  $57,440 = 57,440$

(c)  $60,001 = 60,000$

(d)  $81,989 = 81,990$

(e)  $77,029 = 77,030$

---

#### 2. Round off to the nearest 10,000

(a)  $63,893 = 60,000$

(b)  $78,384 = 80,000$

(c)  $58,523 = 60,000$

(d)  $71,593 = 70,000$

(e)  $59,876 = 60,000$

---

#### 3. Round off to the nearest 10 and nearest 1,000

Number	Nearest 10	Nearest 1,000
62,737	62,740	63,000

Number	Nearest 10	Nearest 1,000
82,990	82,990	83,000
89,923	89,920	90,000
74,357	74,360	74,000
53,728	53,730	54,000

---

#### 4. Seema's Mobile Phone

Actual bill = ₹65,467

Rounded to nearest 1,000:

₹65,467  $\approx$  **₹65,000**

So Seema estimated the bill as **₹65,000**.

---

#### 5. Round and Add to Estimate

##### Nearest 100

(a)

24,583  $\approx$  24,600

35,219  $\approx$  35,200

Estimated sum = **59,800**

(b)

58,764  $\approx$  58,800

11,233  $\approx$  11,200

Estimated sum = **70,000**

(c)

46,907  $\approx$  46,900

23,495  $\approx$  23,500

Estimated sum = **70,400**

---

### Nearest 1,000

(a)

$$73,268 \approx 73,000$$

$$16,741 \approx 17,000$$

$$\text{Estimated sum} = \mathbf{90,000}$$

(b)

$$41,599 \approx 42,000$$

$$28,402 \approx 28,000$$

$$\text{Estimated sum} = \mathbf{70,000}$$

(c)

$$59,430 \approx 59,000$$

$$31,507 \approx 32,000$$

$$\text{Estimated sum} = \mathbf{91,000}$$

---

### Nearest 10

(a)

$$34,675 \approx 34,680$$

$$25,318 \approx 25,320$$

$$\text{Estimated sum} = \mathbf{60,000}$$

(b)

$$62,041 \approx 62,040$$

$$17,959 \approx 17,960$$

$$\text{Estimated sum} = \mathbf{80,000}$$

(c)

$$48,392 \approx 48,390$$

$$31,508 \approx 31,510$$

$$\text{Estimated sum} = \mathbf{79,900}$$

---

## 6. Round and Subtract to Estimate

### Nearest 100

(a)

$$73,658 \approx 73,700$$

$$28,441 \approx 28,400$$

$$\text{Difference} = \mathbf{45,300}$$

(b)

$$95,304 \approx 95,300$$

$$47,899 \approx 47,900$$

$$\text{Difference} = \mathbf{47,400}$$

(c)

$$62,417 \approx 62,400$$

$$19,062 \approx 19,100$$

$$\text{Difference} = \mathbf{43,300}$$

---

### Nearest 1,000

(a)

$$50,004 \approx 50,000$$

$$19,876 \approx 20,000$$

$$\text{Difference} = \mathbf{30,000}$$

(b)

$$84,399 \approx 84,000$$

$$21,015 \approx 21,000$$

$$\text{Difference} = \mathbf{63,000}$$

(c)

$$69,750 \approx 70,000$$

$$35,122 \approx 35,000$$

$$\text{Difference} = \mathbf{35,000}$$

---

### Nearest 10

(a)

$$39,995 \approx 40,000$$

$$8,006 \approx 8,010$$

$$\text{Difference} = \mathbf{31,990}$$

(b)

$$72,431 \approx 72,430$$

$$19,988 \approx 19,990$$

$$\text{Difference} = \mathbf{52,440}$$

(c)

$$63,207 \approx 63,210$$

$$27,651 \approx 27,650$$

$$\text{Difference} = \mathbf{35,560}$$

---

## 7. Bookstore

$$\text{April: } 24,975 \approx 25,000$$

$$\text{May: } 15,042 \approx 15,000$$

$$\text{Estimated total} = \mathbf{40,000 \text{ notebooks}}$$

---

## 8. Bus Distance

$$\text{Year 1} = 67,845 \approx 67,800 \text{ (nearest 100)}$$

$$\text{Less distance} = 29,378 \approx 29,400$$

$$\text{Year 2 distance} \approx$$

$$67,800 - 29,400 = \mathbf{38,400 \text{ km}}$$

---

## 9. Sports Club

$$45,987 \approx 46,000$$

$$23,456 \approx 23,000$$

$$\text{Estimated total items} =$$

$$46,000 + 23,000 = \mathbf{69,000 \text{ items}}$$

## NCERT Corner

### 1. Add

$$(a) 15 + 79 = \mathbf{94}$$

$$(b) 46 + 99 = \mathbf{145}$$

$$(c) 38 + 35 = \mathbf{73}$$

$$(d) 5 + 89 = \mathbf{94}$$

$$(e) 76 + 28 = \mathbf{104}$$

$$(f) 69 + 20 = \mathbf{89}$$

---

### 2. Fill in the blanks

(a)

$$67 - 21 = \mathbf{46}$$

$$67 - 46 = \mathbf{21}$$

(b)

$$100 + \mathbf{98} = 198$$

$$198 - \mathbf{100} = 98$$

(c)

$$287 - 98 = \mathbf{189}$$

$$287 - 189 = \mathbf{98}$$

(d)

$$200 + \mathbf{672} = 872$$

$$872 - \mathbf{200} = 672$$

---

### 3. Write the subtraction and addition sentences

$$(a) 78 + 164 = 242$$

$$242 - 78 = 164$$

$$242 - 164 = 78$$

$$(b) 462 + 839 = 1301$$

$$1301 - 462 = 839$$

$$1301 - 839 = 462$$

$$(c) 921 - 137 = 784$$

$$137 + 784 = 921$$

$$784 + 137 = 921$$

$$(d) 824 - 234 = 590$$

$$234 + 590 = 824$$

$$590 + 234 = 824$$

---

#### 4. Differences

$$(a) 82 - 37 = 45$$

$$(b) 57 - 11 = 46$$

$$(c) 23 - 19 = 4$$

$$(d) 49 - 21 = 28$$

$$(e) 56 - 18 = 38$$

$$(f) 93 - 35 = 58$$

$$(g) 84 - 23 = 61$$

$$(h) 70 - 43 = 27$$

$$(i) 65 - 47 = 18$$

---

#### 5. Add

$$(a) 238 + 367 = 605$$

$$(b) 1,234 + 12,345 = 13,579$$

$$(c) 12 + 123 = 135$$

$$(d) 46,120 + 12,890 = 59,010$$

$$(e) 878 + 8,789 = 9,667$$

$$(f) 1,749 + 17,490 = 19,239$$

---

#### 6. Great Indian Road Trip

Distances shown:

Delhi → Mumbai = 1,600 km

Mumbai → Goa = 590 km

Goa → Hyderabad = 670 km

Hyderabad → Puri = 1,055 km

Total distance = 1,600 + 590 + 670 + 1,055

$$= 3,915 \text{ km}$$

---

### 7. Two numbers whose sum is closest to

Given: 5,205, 6,220, 7,095, 8,455, 4,840

(a)  $10,000 \rightarrow 5,205 + 4,840 = 10,045$

(b)  $15,000 \rightarrow 8,455 + 6,220 = 14,675$

(c)  $13,000 \rightarrow 6,220 + 7,095 = 13,315$

(d)  $16,000 \rightarrow 8,455 + 7,095 = 15,550$

---

### 8. Subtract

(a)  $4,578 - 2,222 = 2,356$

(b)  $15,324 - 11,780 = 3,544$

(c)  $5,423 - 423 = 5,000$

(d)  $123 - 12 = 111$

(e)  $77,777 - 777 = 77,000$

(f)  $826 - 752 = 74$

---

### 9. Mary's Journey

Starting money = ₹12,540

Expenses:

$$₹3,275 + ₹2,645 + ₹1,275 = ₹7,195$$

Gift received = ₹4,900

Money left

$$= 12,540 - 7,195 + 4,900$$

$$= ₹10,245$$

**Answer: ₹10,245**

---

### 10. School Council

Raised = ₹70,500

Expenses:

₹39,785 + ₹9,545 + ₹19,548

= ₹68,878

(a) Estimate:

40,000 + 10,000 + 20,000 = 70,000

So, **Yes, approximately enough money.**

(b) Exact calculation:

₹70,500 – ₹68,878

= **₹1,622 left**

---

### **11. Truck**

(a) Total loaded

3,675 + 2,850 = **6,525 kg**

(b) Capacity left

8,250 – 6,525

= **1,725 kg**

---

### **12. Piggy Bank**

One possible combination:

5 coins of ₹5 = ₹25

4 coins of ₹2 = ₹8

5 coins of ₹1 = ₹5

Total = ₹25 + ₹8 + ₹5

= **₹38**

---

### **13. Torch**

ON at odd-number presses.

OFF at even-number presses.

23rd press → **ON**

54th press → **OFF**

Torch is ON for: **1st, 3rd, 5th, 7th, ... (all odd presses)**

Torch is OFF for: **2nd, 4th, 6th, 8th, ... (all even presses)**

---

#### **14. Add**

(a)  $2,009 + 7,388 = \mathbf{9,397}$

(b)  $26,444 + 71,111 = \mathbf{97,555}$

(c)  $777 + 888 = \mathbf{1,665}$

(d)  $1,234 + 1,234 = \mathbf{2,468}$

(e)  $56 + 56,789 = \mathbf{56,845}$

(f)  $777 + 77,777 = \mathbf{78,554}$

(g)  $5,922 + 9,221 = \mathbf{15,143}$

(h)  $4,321 + 8,765 = \mathbf{13,086}$

(i)  $50,050 + 55,000 = \mathbf{105,050}$

---

#### **15. Subtract**

(a)  $458 - 226 = \mathbf{232}$

(b)  $7,777 - 4,449 = \mathbf{3,328}$

(c)  $65,447 - 47,299 = \mathbf{18,148}$

(d)  $1,234 - 123 = \mathbf{1,111}$

(e)  $12,345 - 1,234 = \mathbf{11,111}$

(f)  $56,789 - 56 = \mathbf{56,733}$

(g)  $87,326 - 11,111 = \mathbf{76,215}$

(h)  $878 - 52 = \mathbf{826}$

$$(i) 749 - 222 = 527$$

---

### **16. Ambrish**

Total cost

$$= 26,000 + 17,000 + 19,873$$

$$= ₹62,873$$

$$\text{Savings} = ₹92,375$$

Money left

$$= 92,375 - 62,873$$

$$= ₹29,502$$

**Yes, he has enough money.**

---

### **17. Factory**

$$\text{Order} = 85,300$$

$$\text{Produced} = 54,000$$

More needed

$$= 85,300 - 54,000$$

$$= \mathbf{31,300 \text{ nuts and bolts}}$$

---

### **18. Virat Kohli**

$$\text{Virat} = 27,599$$

Sachin scored 6,758 more.

Sachin's runs

$$= 27,599 + 6,758$$

$$= \mathbf{34,357 \text{ runs}}$$

**EXAM TIME**

### **A. Multiple Choice Questions (MCQs)**

1.  $24,387 + 15,649$  rounded to nearest 1,000 =  
 $24,000 + 16,000 = 40,000$   
**Ans: (b) 40,000**
  2. Commutative property of addition:  
**Ans: (b)  $54,321 + 23,456 = 23,456 + 54,321$**
  3. In  $68,742 - 29,495$ , the minuend is:  
**Ans: (b) 68,742**
  4. 76,485 rounded to nearest 1,000:  
**Ans: (c) 77,000**
  5. Estimate  $52,699 - 18,241$  to nearest 100:  
 $52,700 - 18,200 = 34,500$   
**Ans: (c) 34,500**
  6. Additive identity:  
**Ans: (c)  $a + 0 = a$**
  7. True statement:  
**Ans: (c)  $67,890 - 0 = 67,890$**
- 

## **B. Fill in the Blanks**

1. The greatest 5-digit number is **99,999**
  2. The smallest 5-digit number is **10,000**
  3. In subtraction, the larger number is called the **minuend**, and the number taken away is called the **subtrahend**.
  4. 58,349 rounded to the nearest 10 is **58,350**
  5. 42,499 rounded to the nearest 1,000 is **42,000**
  6. 67,815 rounded to the nearest 100 is **67,800**
  7. In  $63,205 - 29,872 = 33,333$ , the answer is called the **difference**.
  8.  $a + 0 = a$  and  $a - 0 = a$
  9. 49,999 rounded to the nearest 10,000 is **50,000**
  10. To estimate a sum or difference, both numbers are rounded to the same **place value**.
-

### C. Write True or False

1. Addition of whole numbers is commutative. **True**
  2. Subtraction of whole numbers is associative. **False**
  3. 10,500 rounded to nearest 1,000 is 10,000. **False**  
(It is 11,000)
  4. 75,500 rounded to nearest 1,000 is 76,000. **True**
  5. In  $53,210 - 18,765$ , 18,765 is the minuend. **False**
  6. A subtraction can be checked by addition. **True**
  7. Rounding 64,951 to nearest 100 gives 65,000. **True**
  8.  $0 - 45,678$  is defined as a whole number. **False**
- 

### D. Very Short Answer Questions

1. Round 73,214 to nearest 1,000:  
**73,000**
2. Property shown:  
 $23,456 + 45,678 = 45,678 + 23,456$   
**Commutative Property**
3. Subtrahend in  $88,765 - 21,234$ :  
**21,234**
4. Estimate  $47,982 + 12,019$  (nearest 10,000):  
 $50,000 + 10,000 =$  **60,000**
5. Result of subtraction:  
**Difference**
6. Round 59,999 to nearest 10:  
**60,000**
7. Larger number: 36,540 rounded to nearest 100 or nearest 1,000?  
Nearest 100 = 36,500  
Nearest 1,000 = 37,000

**37,000 is larger**

8. Inverse operation of subtraction:  
**Addition**

---

## E. Short Answer Questions

1.

$$24,583 \rightarrow 24,600$$

$$35,219 \rightarrow 35,200$$

$$\text{Estimated sum} = \mathbf{59,800}$$

Exact sum:

$$24,583 + 35,219 = \mathbf{59,802}$$

---

2.

Nearest 1,000:

$$68,725 \rightarrow 69,000$$

$$21,484 \rightarrow 21,000$$

Estimated difference:

$$69,000 - 21,000 = \mathbf{48,000}$$

Exact difference:

$$68,725 - 21,484 = \mathbf{47,241}$$

---

3.

$$45,972 + 13,458$$

$$= \mathbf{59,430}$$

---

4.

$$80,015 - 19,989$$

$$= \mathbf{60,026}$$

---

5.

Estimate (nearest 10,000):

62,431 → 60,000

17,959 → 20,000

Estimated sum = **80,000**

Exact sum:

62,431 + 17,959 = **80,390**

Comparison:

Exact sum is **390 more** than the estimate.

---

**6.**

Verify  $62,413 - 27,589$

Difference = **34,824**

Verification:

$34,824 + 27,589 = \mathbf{62,413}$

Verified

---

## **F. Long Answer Questions**

### **1. Stadium**

Seats = 45,987

Day 1 = 23,456

Day 2 = 19,754

(a) Estimate (nearest 1,000)

$23,000 + 20,000 = \mathbf{43,000}$

(b) Exact total tickets sold

$23,456 + 19,754 = \mathbf{43,210}$

(c) Seats remaining

$45,987 - 43,210 = \mathbf{2,777 \text{ seats}}$

---

### **2. Bookstore**

Received:

28,765 and 34,928

(a) Estimate (nearest 1,000)

$$29,000 + 35,000 = \mathbf{64,000}$$

(b) Exact total

$$28,765 + 34,928 = \mathbf{63,693}$$

(c) Sold = 37,456

Estimate (nearest 100)

$$63,700 - 37,500 = \mathbf{26,200}$$

Exact remaining

$$63,693 - 37,456 = \mathbf{26,237 \text{ notebooks}}$$

---

### 3. Factory

January = 76,540

February is 18,261 fewer.

(a) Estimate February (nearest 100)

$$76,500 - 18,300 = \mathbf{58,200}$$

(b) Exact February production

$$76,540 - 18,261 = \mathbf{58,279}$$

(c) Total production

Estimate (nearest 1,000)

$$77,000 + 58,000 = \mathbf{1,35,000}$$

Exact total

$$76,540 + 58,279 = \mathbf{1,34,819}$$

---

### 4. Charity Collection

Day 1 = ₹63,275

Day 2 = ₹27,418

(a) Estimate (nearest 10,000)

$$60,000 + 30,000 = \mathbf{₹90,000}$$

(b) Exact total

$$63,275 + 27,418$$

$$= \mathbf{₹90,693}$$

(c) Target = ₹95,000

Needed more

$$95,000 - 90,693$$

$$= \mathbf{₹4,307}$$

---

### Competency-Based Question

Sports items:

- Football jerseys = 23,458
- Cricket caps = 12,974
- Badminton shuttle packs = 8,569
- Skipping ropes = 6,203

**(a) Estimate total (nearest 1,000)**

$$23,000 + 13,000 + 9,000 + 6,000$$

$$= \mathbf{51,000}$$

**(b) Exact total**

$$23,458 + 12,974 + 8,569 + 6,203$$

$$= \mathbf{51,204}$$

**(c) If 18,745 items are distributed**

Estimate (nearest 100):

$$51,200 - 18,700 = \mathbf{32,500}$$

Exact remaining:

$$51,204 - 18,745$$

= 32,459 items

(d) Round exact total to nearest 10,000

51,204 → 50,000

## Ch – 5: Far and Near

### Practice Time 5.1

1. Write each measurement in another unit

(a) 500 cm = ? m

Since 100 cm = 1 m

$$500 \div 100 = 5$$

Answer: 500 cm = 5 m

---

(b) 250 cm = ? m ? cm

$$\begin{aligned} 250 \text{ cm} &= 200 \text{ cm} + 50 \text{ cm} \\ &= 2 \text{ m} + 50 \text{ cm} \end{aligned}$$

Answer: 250 cm = 2 m 50 cm

---

(c) 125 m = ? hm ? m

Since 100 m = 1 hm

$$\begin{aligned} 125 \text{ m} &= 100 \text{ m} + 25 \text{ m} \\ &= 1 \text{ hm} + 25 \text{ m} \end{aligned}$$

Answer: 125 m = 1 hm 25 m

---

(d) 300 cm = ? m

$$300 \div 100 = 3$$

Answer: 300 cm = 3 m

---

(e)  $750 \text{ cm} = ? \text{ m } ? \text{ cm}$

$$\begin{aligned} 750 \text{ cm} &= 700 \text{ cm} + 50 \text{ cm} \\ &= 7 \text{ m} + 50 \text{ cm} \end{aligned}$$

Answer:  $750 \text{ cm} = 7 \text{ m } 50 \text{ cm}$

---

(f)  $475 \text{ cm} = ? \text{ m } ? \text{ cm}$

$$\begin{aligned} 475 \text{ cm} &= 400 \text{ cm} + 75 \text{ cm} \\ &= 4 \text{ m} + 75 \text{ cm} \end{aligned}$$

Answer:  $475 \text{ cm} = 4 \text{ m } 75 \text{ cm}$

---

2. Convert the following

(a)  $725 \text{ cm}$  into m and cm

$$\begin{aligned} 725 \text{ cm} &= 700 \text{ cm} + 25 \text{ cm} \\ &= 7 \text{ m} + 25 \text{ cm} \end{aligned}$$

Answer:  $7 \text{ m } 25 \text{ cm}$

---

(b)  $9 \text{ m } 76 \text{ cm}$  into cm

Since  $1 \text{ m} = 100 \text{ cm}$

$$\begin{aligned} 9 \text{ m} &= 9 \times 100 \text{ cm} \\ &= 900 \text{ cm} \end{aligned}$$

$$900 \text{ cm} + 76 \text{ cm} = 976 \text{ cm}$$

Answer:  $976 \text{ cm}$

---

(c)  $4560 \text{ m}$  into km and m

Since  $1000 \text{ m} = 1 \text{ km}$

$$\begin{aligned} 4560 \text{ m} &= 4000 \text{ m} + 560 \text{ m} \\ &= 4 \text{ km } 560 \text{ m} \end{aligned}$$

Answer:  $4 \text{ km } 560 \text{ m}$

---

(d) 6 km 50 m into m

$$\begin{aligned} 6 \text{ km} &= 6 \times 1000 \text{ m} \\ &= 6000 \text{ m} \end{aligned}$$

$$6000 \text{ m} + 50 \text{ m} = 6050 \text{ m}$$

Answer: 6050 m

---

(e) 125 mm into cm

Since  $10 \text{ mm} = 1 \text{ cm}$

$$125 \div 10 = 12.5$$

Answer: 12.5 cm

---

(f) 9476 m into km and m

$$\begin{aligned} 9476 \text{ m} &= 9000 \text{ m} + 476 \text{ m} \\ &= 9 \text{ km } 476 \text{ m} \end{aligned}$$

Answer: 9 km 476 m

---

3. Compare using  $<$ ,  $>$  or  $=$

(a) 4 m \_\_\_ 450 cm

Convert 4 m to cm:

$$4 \text{ m} = 400 \text{ cm}$$

$$400 \text{ cm} < 450 \text{ cm}$$

Answer:  $4 \text{ m} < 450 \text{ cm}$

---

(b) 600 cm \_\_\_ 6 m

Convert 6 m to cm:

$$6 \text{ m} = 600 \text{ cm}$$

Answer:  $600 \text{ cm} = 6 \text{ m}$

---

(c) 2 m 40 cm \_\_\_ 240 cm

Convert:

$$\begin{aligned} 2 \text{ m } 40 \text{ cm} &= 200 \text{ cm} + 40 \text{ cm} \\ &= 240 \text{ cm} \end{aligned}$$

Answer: 2 m 40 cm = 240 cm

---

(d) 7 m 25 cm \_\_\_ 725 cm

Convert:

$$\begin{aligned} 7 \text{ m } 25 \text{ cm} &= 700 \text{ cm} + 25 \text{ cm} \\ &= 725 \text{ cm} \end{aligned}$$

Answer: 7 m 25 cm = 725 cm

---

(e) 100 cm + 250 cm \_\_\_ 3 m

$$100 \text{ cm} + 250 \text{ cm} = 350 \text{ cm}$$

$$3 \text{ m} = 300 \text{ cm}$$

$$350 \text{ cm} > 300 \text{ cm}$$

Answer: 100 cm + 250 cm > 3 m

---

(f) 6 m 40 cm \_\_\_ 620 cm

Convert:

$$\begin{aligned} 6 \text{ m } 40 \text{ cm} &= 600 \text{ cm} + 40 \text{ cm} \\ &= 640 \text{ cm} \end{aligned}$$

$$640 \text{ cm} > 620 \text{ cm}$$

Answer: 6 m 40 cm > 620 cm

---

**Practice Time 5.2**

### 1. Add the following

(a)  $7\text{ m } 65\text{ cm} + 4\text{ m } 45\text{ cm} + 8\text{ m } 31\text{ cm}$

$= 19\text{ m} + 141\text{ cm}$

$= \mathbf{20\text{ m } 41\text{ cm}}$

---

(b)  $4\text{ m } 35\text{ cm} + 8\text{ m } 80\text{ cm} + 16\text{ m } 5\text{ cm}$

$= 28\text{ m} + 120\text{ cm}$

$= \mathbf{29\text{ m } 20\text{ cm}}$

---

(c)  $12\text{ km } 450\text{ m} + 8\text{ km } 750\text{ m}$

$= 20\text{ km} + 1200\text{ m}$

$= \mathbf{21\text{ km } 200\text{ m}}$

---

(d)  $14536\text{ mm} + 54475\text{ mm}$

$= \mathbf{69011\text{ mm}}$

---

(e)  $5\text{ m } 85\text{ cm} + 6\text{ m } 95\text{ cm} + 2\text{ m } 40\text{ cm}$

$= 13\text{ m} + 220\text{ cm}$

$= \mathbf{15\text{ m } 20\text{ cm}}$

---

(f)  $3\text{ km } 650\text{ m} + 7\text{ km } 575\text{ m}$

$= 10\text{ km} + 1225\text{ m}$

$= \mathbf{11\text{ km } 225\text{ m}}$

---

### 2. Subtract the Following

(a)  $64\text{ m } 36\text{ cm}$  from  $16\text{ m } 5\text{ cm}$

**Meaning:**  $64\text{ m } 36\text{ cm} - 16\text{ m } 5\text{ cm}$

**Solution**

$$\begin{array}{r} 64 \text{ m } 36 \text{ cm} \\ - 16 \text{ m } 05 \text{ cm} \\ \hline \end{array}$$

$$\begin{array}{r} 48 \text{ m } 31 \text{ cm} \\ \hline \end{array}$$

**Answer****48 m 31 cm**

---

**(b) 6 km 250 m from 9 km 600 m****Meaning:**  $9 \text{ km } 600 \text{ m} - 6 \text{ km } 250 \text{ m}$ **Solution**

$$\begin{array}{r} 9 \text{ km } 600 \text{ m} \\ - 6 \text{ km } 250 \text{ m} \\ \hline \end{array}$$

$$\begin{array}{r} 3 \text{ km } 350 \text{ m} \\ \hline \end{array}$$

**Answer****3 km 350 m**

---

**(c) 4 m 95 cm from 10 m 20 cm****Meaning:**  $10 \text{ m } 20 \text{ cm} - 4 \text{ m } 95 \text{ cm}$ Since  $20 \text{ cm} < 95 \text{ cm}$ , borrow  $1 \text{ m} = 100 \text{ cm}$ .

$$10 \text{ m } 20 \text{ cm} = 9 \text{ m } 120 \text{ cm}$$

**Solution**

$$\begin{array}{r} 9 \text{ m } 120 \text{ cm} \\ - 4 \text{ m } 95 \text{ cm} \\ \hline \end{array}$$

$$\begin{array}{r} 5 \text{ m } 25 \text{ cm} \\ \hline \end{array}$$

**Answer**

**5 m 25 cm**

---

**(d) 3 km 750 m from 8 km 500 m**

**Meaning:** 8 km 500 m – 3 km 750 m

Since 500 m < 750 m, borrow 1 km = 1000 m.

8 km 500 m = 7 km 1500 m

**Solution**

7 km 1500 m  
- 3 km 750 m

-----

4 km 750 m

-----

**Answer**

**4 km 750 m**

---

**3. Distance Walked by Riya**

**Morning:** 2 km 450 m

**Evening:** 4 km 550 m

**Solution**

2 km 450 m  
+ 4 km 550 m

-----

7 km 000 m

-----

Since 1000 m = 1 km,

6 km 1000 m = 7 km

**Answer**

**7 km**

---

**4. Length of Wire Left**

**Total wire:** 8 m 75 cm

**Cut off:** 3 m 50 cm

**Solution**

$$\begin{array}{r} 8 \text{ m } 75 \text{ cm} \\ - 3 \text{ m } 50 \text{ cm} \\ \hline 5 \text{ m } 25 \text{ cm} \\ \hline \end{array}$$

**Answer**

**5 m 25 cm**

---

### **5. Distance Covered by Car**

**Before lunch:** 12 km 250 m

**After lunch:** 8 km 775 m

**Solution**

$$\begin{array}{r} 12 \text{ km } 250 \text{ m} \\ + 8 \text{ km } 775 \text{ m} \\ \hline 20 \text{ km } 1025 \text{ m} \\ \hline \end{array}$$

Since  $1000 \text{ m} = 1 \text{ km}$ ,

$$\begin{array}{l} 20 \text{ km } 1025 \text{ m} \\ = 21 \text{ km } 25 \text{ m} \end{array}$$

**Answer**

**21 km 25 m**

---

### **6. Ribbon Left**

**Ribbon length:** 6 m 40 cm

**Used:** 2 m 85 cm

Since  $40 \text{ cm} < 85 \text{ cm}$ , borrow  $1 \text{ m} = 100 \text{ cm}$ .

$$6 \text{ m } 40 \text{ cm} = 5 \text{ m } 140 \text{ cm}$$

**Solution**

$$\begin{array}{r} 5 \text{ m } 140 \text{ cm} \\ - 2 \text{ m } 85 \text{ cm} \\ \hline 3 \text{ m } 55 \text{ cm} \\ \hline \end{array}$$

**Answer**

**3 m 55 cm**

---

**7. Total Distance Covered by Bus**

**First trip:** 18 km 500 m

**Second trip:** 14 km 275 m

**Solution**

$$\begin{array}{r} 18 \text{ km } 500 \text{ m} \\ + 14 \text{ km } 275 \text{ m} \\ \hline 32 \text{ km } 775 \text{ m} \\ \hline \end{array}$$

**Answer**

**32 km 775 m**

---

**Practice Time 5.3**

**1. Convert 6 feet into centimetres**

$$1 \text{ ft} = 30 \text{ cm}$$

$$6 \text{ ft} = 6 \times 30$$

$$= \mathbf{180 \text{ cm}}$$

---

**2. Cupboard height**

5 ft 3 in

$$= (5 \times 30) + (3 \times 2.5)$$

$$= 150 + 7.5$$

$$= \mathbf{157.5 \text{ cm}}$$

---

### **3. Boy's height**

5 ft 7 in

$$= (5 \times 30) + (7 \times 2.5)$$

$$= 150 + 17.5$$

$$= \mathbf{167.5 \text{ cm}}$$

---

### **4. Compare Priya and Naman**

Priya = 5 ft 1 in

$$= 60 + 1 = 61 \text{ in}$$

Naman = 5 ft 8 in

$$= 60 + 8 = 68 \text{ in}$$

Difference = 68 - 61

$$= 7 \text{ in}$$

$$= 7 \times 2.5$$

$$= \mathbf{17.5 \text{ cm}}$$

Naman is taller by **17.5 cm**.

---

### **5. Shortest and tallest student**

Shortest = 4 ft 7 in

$$= 55 \text{ in}$$

Tallest = 5 ft 6 in

$$= 66 \text{ in}$$

Difference

$$= 66 - 55$$

$$= 11 \text{ in}$$

$$= 11 \times 2.5$$

$$= \mathbf{27.5 \text{ cm}}$$

**Answer: 27.5 cm.**

## NCERT Corner

### Let Us Find

#### 1. Identify the appropriate units

Quantity	Given Number	Appropriate Unit
Height of India Gate	42	<b>42 m</b>
Length of a handkerchief	40	<b>40 cm</b>
Depth of a well	50	<b>50 m</b>
Length of a mobile phone	13	<b>13 cm</b>
Length of an elephant's trunk	2	<b>2 m</b>
Distance between two buttons on a shirt	5	<b>5 cm</b>

---

### Different Units but Same Measure

Convert metres and centimetres into centimetres:

- $5 \text{ m } 40 \text{ cm} = \mathbf{540 \text{ cm}}$
- $2 \text{ m } 204 \text{ cm} = \mathbf{404 \text{ cm}}$
- $2 \text{ m } 4 \text{ cm} = \mathbf{204 \text{ cm}}$
- $2 \text{ m } 40 \text{ cm} = \mathbf{240 \text{ cm}}$
- $6 \text{ m } 150 \text{ cm} = \mathbf{750 \text{ cm}}$

### Matching

Length	Same Measure
204 cm	2 m 4 cm
540 cm	5 m 40 cm
750 cm	6 m 150 cm
240 cm	2 m 40 cm
404 cm	2 m 204 cm

---

### Let Us Compare

(a) 456 cm \_\_\_ 5 m

$$5 \text{ m} = 500 \text{ cm}$$

$$456 \text{ cm} < 500 \text{ cm}$$

**Answer:**  $456 \text{ cm} < 5 \text{ m}$

---

(b) 55 cm + 200 cm \_\_\_ 200 cm + 54 cm

$$255 \text{ cm} \text{ ___ } 254 \text{ cm}$$

**Answer:**  $>$

---

(c) 6 m 5 cm \_\_\_ 6 m 50 cm

$$605 \text{ cm} \text{ ___ } 650 \text{ cm}$$

**Answer:**  $<$

---

(d) 2 m 150 cm \_\_\_ 3 m 50 cm

$$2 \text{ m } 150 \text{ cm} = 350 \text{ cm}$$

$$3 \text{ m } 50 \text{ cm} = 350 \text{ cm}$$

**Answer:**  $=$

---

(e) **238 cm** \_\_\_ **138 cm + 1 m**

1 m = 100 cm

138 cm + 100 cm = 238 cm

**Answer: =**

---

### **World's Tallest Statue**

The heights shown are:

- Statue of Unity (India) = **182 m**
- Spring Temple Buddha (China) = **128 m**
- Ushiku Daibutsu (Japan) = **108 m**
- The Motherland Calls (Russia) = **87 m**
- Christ the Redeemer (Brazil) = **38 m**

### **(a) Difference between Statue of Unity and Statue of Liberty**

Statue of Unity = 182 m

Statue of Liberty = 93 m

182 m - 93 m = 89 m

**Answer: 89 m**

---

### **(b) Statues whose heights have the least difference**

Differences:

- 128 m - 108 m = 20 m
- 108 m - 87 m = 21 m
- 87 m - 38 m = 49 m

Smallest difference = **20 m**

**Answer: Spring Temple Buddha and Ushiku Daibutsu**

---

### **(c) Statues whose heights have the largest difference**

Largest height = 182 m

Smallest height = 38 m

$182 \text{ m} - 38 \text{ m} = 144 \text{ m}$

**Answer: Statue of Unity and Christ the Redeemer**

---

**(d) Height of Statue of Unity if doubled**

$182 \times 2 = 364$

**Answer: 364 m**

**Let Us Do**

**Note:** These are activity-based questions. Answers will vary from student to student. A sample answer is given below.

**(a) Nearest and farthest locations from home**

**Nearest location:** Grocery shop (200 m)

**Farthest location:** Railway station (2 km)

---

**(b) Distances in increasing order**

Grocery Shop – 200 m

School – 500 m

Park – 800 m

Railway Station – 2 km

---

**(c) A location equal to or more than 1,000 m from home**

**Railway Station – 2 km (2000 m)**

---

**Let Us Explore**

**Number of ropes needed to make 1 km**

Since:

$1 \text{ km} = 1000 \text{ m}$

<b>Length of rope</b>	<b>Number of ropes needed</b>
1000 m	1
100 m	10
10 m	100
200 m	5
500 m	2
250 m	4

---

### **Kilometre Race**

**1. Water stations are to be arranged after every 500 m. How many water stations must be set up? At what positions?**

Race length = **3 km = 3000 m**

Water stations every 500 m:

500 m

1000 m

1500 m

2000 m

2500 m

3000 m

**Answer**

**Number of water stations = 6**

**Positions:** 500 m, 1000 m, 1500 m, 2000 m, 2500 m and 3000 m.

---

**2. Red and blue flags are to be placed alternately at every 50 m. How many red and blue flags are needed till the finish line?**

Race length = **3000 m**

Flags every 50 m

$$3000 \div 50 = 60$$

Total flags = **60**

Since flags are placed alternately:

Red flags = 30

Blue flags = 30

**Answer**

**30 red flags and 30 blue flags**

---

**3. Children need to stand at an interval of 300 m. How many children are needed? At what positions?**

Race length = **3000 m**

$$3000 \div 300 = 10$$

**Positions**

300 m

600 m

900 m

1200 m

1500 m

1800 m

2100 m

2400 m

2700 m

3000 m

**Answer**

**10 children are needed.**

**Positions:** 300 m, 600 m, 900 m, 1200 m, 1500 m, 1800 m, 2100 m, 2400 m, 2700 m and 3000 m.

---

**Longest Train Journey**

**1. Total length of the route from Dibrugarh to Kanniyakumari**

From the table:

Kanniyakumari is **4,187 km** from Dibrugarh.

**Answer: 4,187 km**

---

### **2. Distance between Vijayawada JN and Jalpaiguri Road**

$2,800 \text{ km} - 983 \text{ km} = 1,817 \text{ km}$

**Answer: 1,817 km**

---

### **3. Distance between Vijayawada JN and Visakhapatnam**

$2,800 \text{ km} - 2,450 \text{ km} = 350 \text{ km}$

**Answer: 350 km**

---

### **4. Which two stations are farther apart?**

Guwahati and Dimapur:

$556 \text{ km} - 306 \text{ km} = 250 \text{ km}$

Bhubaneswar and Jalpaiguri Road:

$2,007 \text{ km} - 983 \text{ km} = 1,024 \text{ km}$

Since  $1,024 \text{ km} > 250 \text{ km}$ ,

**Answer: Bhubaneswar and Jalpaiguri Road**

---

### **5. Distance between Guwahati and Coimbatore JN**

$3,675 \text{ km} - 556 \text{ km} = 3,119 \text{ km}$

**Answer: 3,119 km**

#### **A. Multiple Choice Questions**

1. 1 kilometre is equal to:

Options:

- (a) 100 m
- (b) 1,000 m

- (c) 10,000 m
- (d) 100 cm

Solution

We know:

1 kilometre (km) = 1000 metres (m)

Answer

(b) 1,000 m

---

2. 1 centimetre is equal to:

Options:

- (a) 1 mm
- (b) 10 mm
- (c) 100 mm
- (d) 1,000 mm

Solution

We know:

1 cm = 10 mm

Answer

(b) 10 mm

---

3. The best tool to measure a curved garden path is a:

Options:

- (a) Long tape
- (b) Measuring wheel
- (c) Ruler
- (d) Laser pointer

Solution

A curved path cannot be measured accurately with a ruler or laser pointer.

A measuring wheel rolls along the curve and measures the distance.

Answer

(b) Measuring wheel

---

4. 6 m 25 cm written in metres is:

Options:

- (a) 6.025 m
- (b) 6.25 m
- (c) 6.205 m
- (d) 6.52 m

Solution

Convert 25 cm into metres.

$$\begin{aligned} 25 \text{ cm} &= 25 \div 100 \text{ m} \\ &= 0.25 \text{ m} \end{aligned}$$

Add to 6 m.

$$6 \text{ m} + 0.25 \text{ m} = 6.25 \text{ m}$$

Answer

(b) 6.25 m

---

5. A 3 km race has water stations every 500 m, not counting the finish line. How many stations are needed?

Options:

- (a) 4
- (b) 5
- (c) 6
- (d) 7

Solution

Convert 3 km into metres.

$$3 \text{ km} = 3000 \text{ m}$$

Stations will be at:

500 m

1000 m

1500 m

2000 m

2500 m

The station at 3000 m is the finish line, so it is not counted.

Answer

(b) 5

---

6. 1 foot is equal to:

Options:

- (a) 10 inches
- (b) 12 inches
- (c) 30 inches
- (d) 6 inches

Solution

Standard conversion:

$$1 \text{ foot} = 12 \text{ inches}$$

Answer

(b) 12 inches

---

7. Which unit is best to measure the thickness of a coin?

Options:

- (a) km
- (b) m

- (c) cm
- (d) mm

Solution

The thickness of a coin is very small.

Millimetre (mm) is the most suitable unit for very small lengths.

Answer

(d) mm

---

B. Fill in the Blanks (Detailed Solutions)

1. 10 mm = \_\_\_\_\_ cm

Solution

10 mm = 1 cm

Answer

1 cm

---

2. 100 cm = \_\_\_\_\_ m

Solution

100 cm = 1 m

Answer

1 m

---

3. 1,000 m = \_\_\_\_\_ km

Solution

1000 m = 1 km

Answer

1 km

---

4. 2 km 300 m = \_\_\_\_\_ m

Solution

$$2 \text{ km} = 2000 \text{ m}$$

$$\begin{aligned} 2000 \text{ m} + 300 \text{ m} \\ = 2300 \text{ m} \end{aligned}$$

Answer

$$2300 \text{ m}$$

---

5. 5 m 80 cm = \_\_\_\_\_ cm

Solution

$$5 \text{ m} = 500 \text{ cm}$$

$$\begin{aligned} 500 \text{ cm} + 80 \text{ cm} \\ = 580 \text{ cm} \end{aligned}$$

Answer

$$580 \text{ cm}$$

---

6. 7 feet = \_\_\_\_\_ inches

Solution

$$1 \text{ foot} = 12 \text{ inches}$$

$$7 \times 12 = 84$$

Answer

$$84 \text{ inches}$$

---

7. 1 inch = \_\_\_\_\_ cm

Solution

$$1 \text{ inch} \approx 2.5 \text{ cm}$$

Answer

2.5 cm

---

8. Best tool to measure room height is a \_\_\_\_\_ distance meter.

Solution

A laser distance meter can quickly and accurately measure room height.

Answer

laser

---

9. 9 m 45 cm written as metres = \_\_\_\_\_ m

Solution

$$\begin{aligned} 45 \text{ cm} &= 45 \div 100 \\ &= 0.45 \text{ m} \end{aligned}$$

$$\begin{aligned} 9 \text{ m} + 0.45 \text{ m} \\ &= 9.45 \text{ m} \end{aligned}$$

Answer

9.45 m

---

10. Cost per metre when ₹180 for 9 m = ₹ \_\_\_\_\_ /m

Solution

$$\begin{aligned} \text{Cost per metre} \\ &= ₹180 \div 9 \\ &= ₹20 \end{aligned}$$

Answer

₹20/m

---

C. Write True or False (with Explanation)

1. 1 cm = 1 mm

We know:

$$1 \text{ cm} = 10 \text{ mm}$$

Answer

False

---

2. Measuring wheel is useful on curved roads.

A measuring wheel rolls along curved paths.

Answer

True

---

3.  $6 \text{ m } 40 \text{ cm} = 6.40 \text{ m}$

$$40 \text{ cm} = 0.40 \text{ m}$$

$$\begin{aligned} 6 \text{ m} + 0.40 \text{ m} \\ = 6.40 \text{ m} \end{aligned}$$

Answer

True

---

4.  $1 \text{ foot} = 30 \text{ cm}$

Approximate conversion:

$$1 \text{ foot} \approx 30 \text{ cm}$$

Answer

True

---

5.  $2 \text{ km } 500 \text{ m} = 2,050 \text{ m}$

Solution

$$2 \text{ km} = 2000 \text{ m}$$

$$\begin{aligned} 2000 \text{ m} + 500 \text{ m} \\ = 2500 \text{ m} \end{aligned}$$

Answer

False

---

6. A long tape is better than a ruler for a football field.

A ruler is too short.

Answer

True

---

7. If cost per metre is constant, length and cost are proportional.

More length means proportionally more cost.

Answer

True

---

8. In subtraction, we may borrow  $1 \text{ m} = 100 \text{ cm}$ .

This is the standard borrowing rule in length subtraction.

Answer

True

---

### **1. D. Very Short Type Answer Questions**

1. Write 345 cm in metres and centimetres.

Solution

We know:

$$100 \text{ cm} = 1 \text{ m}$$

345 cm can be written as:

$$\begin{aligned} 345 \text{ cm} &= 300 \text{ cm} + 45 \text{ cm} \\ &= 3 \text{ m} + 45 \text{ cm} \end{aligned}$$

Answer

$$345 \text{ cm} = 3 \text{ m } 45 \text{ cm}$$

---

2. Convert 1.6 km to metres.

Solution

We know:

$$1 \text{ km} = 1000 \text{ m}$$

Therefore,

$$\begin{aligned} 1.6 \text{ km} &= 1.6 \times 1000 \\ &= 1600 \text{ m} \end{aligned}$$

Answer

1600 m

---

3. Which unit will you use to measure the width of a pencil?

Solution

The width of a pencil is a small length.

Therefore, it is measured in centimetres (cm).

Answer

Centimetre (cm)

---

4. Find the cost of 8 m if ₹30 is the cost of 12 m.

Solution

First find the cost of 1 m.

$$\text{Cost of 12 m} = ₹30$$

$$\begin{aligned} \text{Cost of 1 m} &= ₹30 \div 12 \\ &= ₹2.50 \end{aligned}$$

Now find the cost of 8 m.

$$\begin{aligned} \text{Cost of 8 m} &= ₹2.50 \times 8 \\ &= ₹20 \end{aligned}$$

Answer

₹20

---

5. Round  $198\text{ m} + 302\text{ m}$  by friendly numbers and give the exact sum.

Solution

Friendly numbers:

$$198 \approx 200$$

$$302 \approx 300$$

Estimated sum:

$$200 + 300 = 500$$

Exact sum:

$$198 + 302 = 500$$

Answer

500 m

---

6. State the safety rule for a laser distance meter.

Answer

Never point the laser beam towards anyone's eyes.

---

7. Complete:

$$89\text{ mm} = \underline{\quad}\text{ cm } \underline{\quad}\text{ mm}$$

Solution

We know:

$$10\text{ mm} = 1\text{ cm}$$

$$\begin{aligned} 89\text{ mm} &= 80\text{ mm} + 9\text{ mm} \\ &= 8\text{ cm} + 9\text{ mm} \end{aligned}$$

Answer

8 cm 9 mm

---

8. How many 2 m 50 cm strips can be cut from 10 m?

Solution

Convert both measurements into centimetres.

$$10 \text{ m} = 1000 \text{ cm}$$

$$2 \text{ m } 50 \text{ cm} = 250 \text{ cm}$$

Number of strips:

$$1000 \div 250 = 4$$

Answer

4 strips

---

#### F. Long Answer Type Questions

1. Riya measured the school corridor as 48 m 75 cm and the classroom as 12 m 60 cm.

(a) Find the total length.

Solution

$$\begin{array}{r} 48 \text{ m } 75 \text{ cm} \\ + 12 \text{ m } 60 \text{ cm} \\ \hline 60 \text{ m } 135 \text{ cm} \end{array}$$

Since  $100 \text{ cm} = 1 \text{ m}$ ,

$$\begin{array}{l} 60 \text{ m } 135 \text{ cm} \\ = 61 \text{ m } 35 \text{ cm} \end{array}$$

Answer

61 m 35 cm

---

(b) Express the total in metres only.

Solution

61 m 35 cm

$$\begin{array}{l} 35 \text{ cm} = 35/100 \text{ m} \\ = 0.35 \text{ m} \end{array}$$

$$61 \text{ m} + 0.35 \text{ m} \\ = 61.35 \text{ m}$$

Answer

$$61.35 \text{ m}$$

---

(c) If 1 metre of skirting costs ₹45, find the total cost.

Solution

$$\text{Length} = 61.35 \text{ m}$$

$$\text{Cost per metre} = ₹45$$

$$61.35 \times 45 \\ = 2760.75$$

Answer

$$₹2,760.75$$

---

2. A walking plan

Distances from Day 1 to Day 7:

2 km 250 m, 2 km 500 m, 2 km 750 m, 3 km, 3 km 250 m, 3 km 500 m, 3 km 750 m

(a) Find the total distance.

Solution

Convert all to metres:

$$2250 + 2500 + 2750 + 3000 + 3250 + 3500 + 3750 \\ = 21000 \text{ m}$$

$$21000 \text{ m} = 21 \text{ km}$$

Answer

$$21 \text{ km}$$

---

(b) What is the average distance per day in metres?

Solution

Total distance = 21000 m

Number of days = 7

$$21000 \div 7 = 3000$$

Answer

3000 m

---

3. Two cities are 128 km apart. A bus stop is placed every 4 km starting after the first 4 km and not at the finish line.

(a) How many stops are there?

Solution

Stops will be at:

4 km, 8 km, 12 km, ... , 124 km

$$124 \div 4 = 31$$

Answer

31 stops

---

(b) At what distances from the start are the 1st, 5th and last stops?

Solution

1st stop = 4 km

$$\begin{aligned} 5\text{th stop} &= 5 \times 4 \\ &= 20 \text{ km} \end{aligned}$$

Last stop = 124 km

Answer

1st = 4 km, 5th = 20 km, Last = 124 km

---

4. School is buying cloth for flags. 5 m costs ₹100.

(a) Find cost per metre.

Solution

$$₹100 \div 5 = ₹20$$

Answer

₹20 per metre

---

(b) Find the cost of 46 m.

Solution

$$46 \times ₹20 \\ = ₹920$$

Answer

₹920

---

(c) For a budget of ₹1280, how many metres can be bought?

Solution

$$₹1280 \div ₹20 \\ = 64$$

Answer

64 m

---

(d) Show one part on a double number line.

Length (m): 1    5    10

Cost (₹): 20   100   200

---

Competency-Based Questions

Assertion–Reason

1.

Assertion: Measuring wheel is preferred for a winding park track.

Reason: A wheel rolls along curves and adds distance automatically.

Answer

(a) Both A and R are true and R is the correct explanation of A.

---

2.

Assertion:  $6\text{ m } 8\text{ cm} = 6.8\text{ m}$

Reason:  $1\text{ cm} = 0.01\text{ m}$

Solution

$$\begin{aligned}6\text{ m } 8\text{ cm} \\ &= 6 + 0.08 \\ &= 6.08\text{ m}\end{aligned}$$

Assertion is false.

Reason is true.

Answer

(d) A is false but R is true.

---

3.

Assertion: When subtracting  $5\text{ m } 30\text{ cm}$  from  $7\text{ m } 10\text{ cm}$ , we borrow  $1\text{ m} = 100\text{ cm}$ .

Reason: Borrowing changes  $7\text{ m } 10\text{ cm}$  to  $6\text{ m } 110\text{ cm}$ .

Both statements are true.

Answer

(a) Both A and R are true and R is the correct explanation of A.

---

4.

Assertion: If cloth price is constant per metre, the graph of cost against length is a straight line through the origin.

Reason: Cost is directly proportional to length.

Answer

(a) Both A and R are true and R is the correct explanation of A.

---

5.

Assertion: 1 foot equals 10 inches.

Reason: 1 inch  $\approx$  2.5 cm and 1 foot  $\approx$  30 cm.

Assertion is false because:

1 foot = 12 inches

Reason is true.

Answer

(d) A is false but R is true.

---

### Case Study Based Questions

#### 1. Courier Route

Given:

A = 0.9 km

B = 1.7 km

C = 3.0 km

D = 4.6 km

E = 6.1 km

Final Station = 7.8 km

(a) Total route length

Answer: 7.8 km

---

(b) Distance from C to E

6.1 - 3.0

= 3.1 km

Answer

3.1 km

---

(c) Longest gap between consecutive stops

$$A-B = 0.8 \text{ km}$$

$$B-C = 1.3 \text{ km}$$

$$C-D = 1.6 \text{ km}$$

$$D-E = 1.5 \text{ km}$$

$$E\text{-Final} = 1.7 \text{ km}$$

$$\text{Largest gap} = 1.7 \text{ km}$$

Answer

Between E and Final Station

---

(d) Courier cycles 900 m every 5 minutes.

Route length:

$$7.8 \text{ km} = 7800 \text{ m}$$

Time:

$$7800 \div 900 = 8.67$$

$$8.67 \times 5$$

$$\approx 43.3 \text{ minutes}$$

Answer

About 43 minutes

---

2. Loop Walkway

$$\text{Length} = 2.4 \text{ km} = 2400 \text{ m}$$

(a) Booths every 60 m

$$2400 \div 60 = 40$$

Answer

40 booths

---

(b) Volunteers every 150 m

$$2400 \div 150 = 16$$

Answer

16 volunteers

---

(c) Arches every 400 m starting at 0 m

Positions:

0, 400, 800, 1200, 1600, 2000, 2400

Answer

7 arches

---

(d) Which item stands at 1050 m?

$$1050 \div 150 = 7$$

So a volunteer stands at 1050 m.

1050 is not a multiple of 60 or 400.

Answer

Volunteer

---

(e) Total water required

$$\begin{aligned} &40 \text{ booths} \times 8 \text{ L} \\ &= 320 \text{ L} \end{aligned}$$

Answer

320 litres

## Ch – 6 : The Dairy Farm

### Practice Time 6.1

#### A. Identify Factors and Product

1.  $7 \times 4 = \underline{\quad}$

$$7 \times 4 = 28$$

**Factors:** 7 and 4

**Product:** 28

---

**2.** \_\_\_\_\_  $\times$  5 = 40

$40 \div 5 = 8$

**Answer:** 8

---

**3.** 9  $\times$  \_\_\_\_\_ = 81

$81 \div 9 = 9$

**Answer:** 9

---

**4.** 8  $\times$  6 = \_\_\_\_\_

$8 \times 6 = 48$

**Answer:** 48

---

**5.** 5  $\times$  5 = \_\_\_\_\_

$5 \times 5 = 25$

**Answer:** 25

---

**6.** \_\_\_\_\_  $\times$  8 = 72

$72 \div 8 = 9$

**Answer:** 9

---

**7. In the multiplication  $11 \times 8 = 88$ , identify:**

**Factors:** 11 and 8

**Product:** 88

---

## **B. Missing Number Multiplication Puzzles**

**1.  $6 \times \underline{\quad} = 54$**

$$54 \div 6 = 9$$

**Answer: 9**

---

**2.  $\underline{\quad} \times 9 = 72$**

$$72 \div 9 = 8$$

**Answer: 8**

---

**3.  $15 \times \underline{\quad} = 60$**

$$60 \div 15 = 4$$

**Answer: 4**

---

**4.  $\underline{\quad} \times 8 = 64$**

$$64 \div 8 = 8$$

**Answer: 8**

---

## **C. Multiplication by Multiples of 10, 100 and 1000**

**1.  $243 \times 20$**

$$\begin{aligned} 243 \times 20 \\ = 243 \times 2 \times 10 \\ = 486 \times 10 \\ = 4,860 \end{aligned}$$

**Answer: 4,860**

---

**2.  $125 \times 30$**

$$\begin{aligned} 125 \times 30 \\ = 125 \times 3 \times 10 \end{aligned}$$

$$= 375 \times 10$$

$$= 3,750$$

**Answer:** 3,750

---

**3.  $478 \times 40$**

$$478 \times 40$$

$$= 478 \times 4 \times 10$$

$$= 1,912 \times 10$$

$$= 19,120$$

**Answer:** 19,120

---

**4.  $54 \times 200$**

$$54 \times 200$$

$$= 54 \times 2 \times 100$$

$$= 108 \times 100$$

$$= 10,800$$

**Answer:** 10,800

---

**5.  $89 \times 300$**

$$89 \times 300$$

$$= 89 \times 3 \times 100$$

$$= 267 \times 100$$

$$= 26,700$$

**Answer:** 26,700

---

**6.  $30 \times 400$**

$$30 \times 400$$

$$= 3 \times 4 \times 1000$$

$$= 12 \times 1000$$

$$= 12,000$$

**Answer:** 12,000

---

## Practice Time 6.2

### 1. Use Standard Method

(a)  $112 \times 23$

$$\begin{array}{r} 112 \\ \times 23 \\ \hline 336 \quad (112 \times 3) \\ + 2240 \quad (112 \times 20) \\ \hline 2576 \\ \hline \end{array}$$

**Answer**

$$112 \times 23 = 2,576$$

---

(b)  $26 \times 48$

$$\begin{array}{r} 26 \\ \times 48 \\ \hline 208 \quad (26 \times 8) \\ + 1040 \quad (26 \times 40) \\ \hline 1248 \\ \hline \end{array}$$

**Answer**

$$26 \times 48 = 1,248$$

---

(c)  $124 \times 19$

$$\begin{array}{r} 124 \\ \times 19 \\ \hline 1116 \quad (124 \times 9) \\ + 1240 \quad (124 \times 10) \\ \hline \end{array}$$

$$\begin{array}{r} \text{-----} \\ 2356 \\ \text{-----} \end{array}$$

**Answer**

$$124 \times 19 = 2,356$$

---

**(d)  $21 \times 64$**

$$\begin{array}{r} 21 \\ \times 64 \\ \text{-----} \\ 84 \quad (21 \times 4) \\ + 1260 \quad (21 \times 60) \\ \text{-----} \\ 1344 \\ \text{-----} \end{array}$$

**Answer**

$$21 \times 64 = 1,344$$

---

**3. True (T) or False (F)**

**(a)  $10 \times 10 = 100$**

**T**

---

**(b)  $754 \times 11 = 8094$**

$$\begin{aligned} 754 \times 11 \\ = 7540 + 754 \\ = 8294 \end{aligned}$$

**F**

---

**(c)  $854 \times 100 = 8540$**

$$854 \times 100 = 85,400$$

**F**

---

**(d)  $356 \times 55 = 19580$**

$$\begin{aligned} & 356 \times 55 \\ &= 356 \times (50 + 5) \\ &= 17,800 + 1,780 \\ &= 19,580 \end{aligned}$$

**T**

---

#### **4. Word Problem**

**Manoj has 452 bags of wheat. Each bag weighs 89 kg.**

**Solution**

$$\begin{array}{r} 452 \\ \times 89 \\ \hline 4068 \quad (452 \times 9) \\ + 36160 \quad (452 \times 80) \\ \hline 40228 \\ \hline \end{array}$$

**Answer**

**Total weight = 40,228 kg**

---

#### **Practice Time 6.3**

##### **1. Multiply using Lattice Method (Final Answers)**

**(a)  $236 \times 56$**

$$236 \times 56 = 13,216$$

**Answer**

**13,216**

---

**(b)  $156 \times 231$**

$$156 \times 231 \\ = 36,036$$

**Answer**

**36,036**

---

**(c)  $487 \times 158$**

$$487 \times 158 \\ = 76,946$$

**Answer**

**76,946**

---

**(d)  $12 \times 78$**

$$12 \times 78 \\ = 936$$

**Answer**

**936**

---

### **3. Aman sells newspapers**

**Given**

- Newspapers = 285
- Pages in each newspaper = 25

**Solution**

$$\begin{array}{r} 285 \\ \times 25 \\ \hline 1425 \\ + 5700 \\ \hline 7125 \\ \hline \end{array}$$

**Answer**

**Total pages = 7,125**

---

## **Practice Time 6.4**

### **1. Multiplex Capacity**

**Given**

- Number of auditoriums = 3
- Capacity of each = 320 people

**Solution**

$$320 \times 3 = 960$$

**Answer**

**960 people**

---

### **2. Matchsticks and Candles**

**Given**

- Matchsticks in one box = 25
- Matchboxes = 81

**Solution**

$$\begin{array}{r} 81 \\ \times 25 \\ \hline 405 \\ + 1620 \\ \hline 2025 \end{array}$$

**Answer**

**2,025 candles**

---

### **3. Flights from Delhi to Mumbai**

**Given**

- Flights = 15
- Capacity per flight = 270

**Solution**

$$\begin{array}{r} 270 \\ \times 15 \\ \hline 1350 \\ + 2700 \\ \hline 4050 \end{array}$$

**Answer**

**4,050 passengers**

---

**4. Car Distance Covered**

**Given**

- Speed = 60 km/h
- Time = 15 h

**Solution**

$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$\begin{aligned} &= 60 \times 15 \\ &= 900 \text{ km} \end{aligned}$$

**Answer**

**900 km**

---

**5. Chocolate Bars**

**Given**

- Divisions in one bar = 125
- Number of bars = 22

**Solution**

$$\begin{array}{r} 125 \\ \times 22 \\ \hline 250 \\ + 2500 \\ \hline 2750 \end{array}$$

**Answer**

**2,750 divisions**

---

## 6. Cost of Light Pens

**Given**

- Cost of one pen = ₹223
- Number of pens = 18

**Solution**

$$\begin{array}{r} 223 \\ \times 18 \\ \hline 1784 \\ + 2230 \\ \hline 4014 \end{array}$$

**Answer**

**₹4,014**

---

## 7. Shuttles

**Given**

- Players = 100
- Shuttles per player = 16

**Solution**

$$100 \times 16 = 1600$$

**Answer**

**1,600 shuttles**

---

### **8. Toy Factory**

**Given**

- Toys per day = 458
- Days = 28

**Solution**

$$\begin{array}{r} 458 \\ \times 28 \\ \hline 3664 \\ + 9160 \\ \hline 12824 \end{array}$$

**Answer**

**12,824 toys**

---

### **9. Sweet Shop**

**Given**

- Sweets sold per day = 45 kg
- Days = 31

**Solution**

$$\begin{array}{r} 45 \\ \times 31 \\ \hline 45 \\ + 1350 \\ \hline 1395 \end{array}$$

**Answer**

**1,395 kg of sweets**

**NCERT Corner – Let Us Think**

**1. Find the numbers hiding in the shapes**

Let:

- Rectangle = R
- Circle = C
- Triangle = T
- Diamond = D
- Pentagon = P
- Half-circle = H
- Special shape = S

Given:

(a)  $R \times C = T$

(b)  $D \times P \times D$

(c)  $R \times R = S$

(d)  $R \times C = H$

(e)  $\text{Parallelogram} \times D = T$

(f)  $H \times \text{Rectangle} = \text{Parallelogram} \times T$

Since all numbers are between 1 and 24, one suitable set is:

- Rectangle = 4
- Circle = 3
- Triangle = 12
- Diamond = 2
- Pentagon = 3
- Half-circle = 12
- Parallelogram = 6
- Special shape = 16

Check:

- $4 \times 3 = 12 \checkmark$
- $2 \times 3 \times 2 = 12 \checkmark$
- $4 \times 4 = 16 \checkmark$
- $4 \times 3 = 12 \checkmark$
- $6 \times 2 = 12 \checkmark$
- $12 \times 4 = 6 \times 8 \checkmark$

(Several answers are possible.)

---

## **2. Place digits 2, 5 and 3 to get a product close to 100**

Possible arrangement:

$$25 \times 3 = 75$$

$$\text{Difference from } 100 = 25$$

Another arrangement:

$$32 \times 5 = 160$$

$$\text{Difference from } 100 = 60$$

Hence,

**Answer:**

$$\mathbf{25 \times 3 = 75} \text{ (closest to 100)}$$

---

## **Question 3 – Butter Milk Pouches**

Total pouches = **60**

Different arrangements:

$$30 \times 2 = 60 \text{ (given)}$$

$$15 \times 4 = 60$$

$$12 \times 5 = 60$$

$$10 \times 6 = 60$$

Other groups:

$$20 \times 3 = 60$$

$$60 \times 1 = 60$$

---

#### Question 4 – Which Number Am I?

Clues:

- Greater than 8
- Not a multiple of 4
- Multiple of 9
- Odd number
- Not a multiple of 11
- Less than 50
- Ones digit even
- Tens digit odd

Multiples of 9 less than 50:

9, 18, 27, 36, 45

Odd numbers among them:

9, 27, 45

Tens digit odd:

27, 45

Ones digit even:

27 ✗

45 ✗

No number satisfies all clues.

The clue **"I am an odd number"** and **"My ones digit is even"** contradict each other.

**Answer:**

**No number is possible.**

---

**Let Us Solve**

**1. Auditorium**

Rows = 35

Seats in each row = 42

$$35 \times 42$$

$$= 35 \times (40 + 2)$$

$$= 1400 + 70$$

$$= 1470$$

**Answer:**

**1,470 people**

---

**2. Priya's Jogging**

4 km  $\times$  31 days

$$= 124 \text{ km}$$

**Answer:**

**124 km**

---

**3. Books Received**

$$36 \times 48$$

$$= 36 \times (50 - 2)$$

$$= 1800 - 72$$

$$= 1728$$

**Answer:**

**1,728 books**

---

#### **4. Cloth for Kurtas**

16 m for 4 kurtas

For 1 kurta =  $16 \div 4 = 4$  m

For 8 kurtas =  $8 \times 4 = 32$  m

**Answer:**

**32 m**

---

#### **5. Milk Produced**

$29 \times 5 = 145$

**Answer:**

**145 litres**

---

#### **6. Fodder Needed**

$297 \times 18$

$= 297 \times (20 - 2)$

$= 5940 - 594$

$= 5346$

**Answer:**

**5,346 kg**

---

#### **Let Us Do – Q1**

**(a)  $78 \times 4$**

$$78 \times 4$$

$$= 312$$

**Answer:**

**312**

---

**(b)  $83 \times 9$**

$$83 \times 9$$

$$= 747$$

**Answer:**

**747**

---

**(c)  $67 \times 28$**

$$67 \times 28$$

$$= 67 \times (20 + 8)$$

$$= 1340 + 536$$

$$= 1876$$

**Answer:**

**1,876**

---

**(d)  $53 \times 37$**

$$53 \times 37$$

$$= 53 \times (30 + 7)$$

$$= 1590 + 371$$

$$= 1961$$

**Answer:**

**1,961**

---

**Let Us Do – Q2 (Same Answer)**

**$12 \times 17$**

$$11 \times 18 = 198$$

$$6 \times 34 = 204$$

$$12 \times 17 = 204$$

**Answer:**

**$6 \times 34$**

---

**$18 \times 4$**

$$18 \times 4 = 72$$

$$9 \times 8 = 72$$

$$20 \times 4 - 8 = 72$$

**Answer:**

**Both**

---

**$101 \times 42$**

$$100 \times 42 + 42$$

**Answer:**

$$100 \times 42 + 42$$

---

**$1001 \times 5$**

$$1000 \times 5 + 5$$

**Answer:**

$$1000 \times 5 + 5$$

---

**$26 \times 11$**

$$26 \times 10 + 26 \times 1$$

**Answer:**

$$26 \times 10 \text{ and } 26 \times 1$$

---

$$55 \times 9$$

$$50 \times 9 + 5 \times 9 \\ = 495$$

$$55 \times 10 - 55 \\ = 495$$

**Answer:**

**Both**

---

$$247 \times 8$$

$$250 \times 8 - 24 \\ = 2000 - 24 \\ = 1976$$

**Answer:**

$$250 \times 8 - 24$$

---

$$1999 \times 2$$

$$2000 \times 2 - 2$$

**Answer:**

$$2000 \times 2 - 2$$

---

**Find Easy Ways**

**(a)  $16 \times 25$**

$$= 4 \times 4 \times 25$$

$$= 4 \times 100$$

$$= 400$$

**Answer: 400**

---

**(b)  $12 \times 125$**

$$= 3 \times 4 \times 125$$

$$= 3 \times 500$$

$$= 1500$$

**Answer: 1,500**

---

**(c)  $24 \times 250$**

$$= 6 \times 1000$$

$$= 6000$$

**Answer: 6,000**

---

**(d)  $36 \times 25$**

$$= 9 \times 100$$

$$= 900$$

**Answer: 900**

---

**(e)  $28 \times 75$**

$$= 7 \times 300$$

$$= 2100$$

**Answer: 2,100**

---

**(f)  $300 \times 15$**

$$= 4500$$

**Answer: 4,500**

---

**(g)  $50 \times 78$**

$$= 3900$$

**Answer: 3,900**

---

**(h)  $199 \times 63$**

$$= (200 - 1) \times 63$$

$$= 12600 - 63$$

$$= 12537$$

**Answer: 12,537**

---

**(i)  $128 \times 35$**

$$= 128 \times (30 + 5)$$

$$= 3840 + 640$$

$$= 4480$$

**Answer: 4,480**

---

**Page 127 – Question 5**

Given:

$$17 \times 23 = 391$$

$$8 \times 9 = 72$$

**(b)**

$$17 \times 24$$

$$= 17 \times 23 + 17$$

$$= 391 + 17$$

$$= 408$$

**(c)**

$$17 \times 22$$

$$= 391 - 17$$

$$= 374$$

**(d)**

$$\begin{aligned} &16 \times 23 \\ &= 391 - 23 \\ &= 368 \end{aligned}$$

**(f)**

$$\begin{aligned} &18 \times 9 \\ &= 72 + 9 \\ &= 81 \end{aligned}$$

**(g)**

$$\begin{aligned} &28 \times 9 \\ &= 72 + 180 \\ &= 252 \end{aligned}$$

**(h)**

$$\begin{aligned} &108 \times 9 \\ &= 100 \times 9 + 8 \times 9 \\ &= 900 + 72 \\ &= 972 \end{aligned}$$

**(i)**

$$\begin{aligned} &18 \times 23 \\ &= 17 \times 23 + 23 \\ &= 391 + 23 \\ &= 414 \end{aligned}$$

---

**Multiply**

**(a)  $67 \times 78$**

$$67 \times 78$$

$$= 67 \times (80 - 2)$$

$$= 5360 - 134$$

$$= 5226$$

**Answer: 5,226**

---

**(b)  $34 \times 56$**

$$34 \times 56$$

$$= 34 \times (50 + 6)$$

$$= 1700 + 204$$

$$= 1904$$

**Answer: 1,904**

---

**(c)  $45 \times 263$**

$$45 \times 263$$

$$= 263 \times (40 + 5)$$

$$= 10520 + 1315$$

$$= 11835$$

**Answer: 11,835**

---

**(d)  $86 \times 542$**

$$86 \times 542$$

$$= 542 \times (80 + 6)$$

$$= 43360 + 3252$$

$$= 46612$$

**Answer: 46,612**

---

**(e)  $432 \times 107$**

$$432 \times 107$$

$$= 432 \times (100 + 7)$$

$$= 43200 + 3024$$

$$= 46224$$

**Answer: 46,224**

---

**(f)  $310 \times 120$**

$$310 \times 120$$

$$= 31 \times 12 \times 100$$

$$= 372 \times 100$$

$$= 37200$$

**Answer: 37,200**

---

**Q5**

Given:

$$67 \times 67 = 4489$$

Then,

$$67 \times 68$$

$$= 67 \times (67 + 1)$$

$$= 4489 + 67$$

$$= 4556$$

**Answer:**

**4,556**

---

**Q6**

Given:

$$99 \times 100 = 9900$$

Then,

$$99 \times 99$$

$$= 99 \times (100 - 1)$$

$$= 9900 - 99$$

$$= 9801$$

**Answer:**

**9,801**

## EXAM TIME

### A. Multiple Choice Questions

1.  $12 \times 0 = ?$

**Answer: (b) 0**

2.  $25 \times 10 = ?$

**Answer: (a) 250**

3. The product of  $36 \times 5$  is the same as:

**Answer: (a)  $(30 \times 5) + (6 \times 5)$**

4. Which property is shown by  $9 \times 6 = 6 \times 9$ ?

**Answer: (b) Commutative**

5.  $125 \times 1000 = ?$

**Answer: (c) 125,000**

6.  $47 \times 100 = ?$

**Answer: (b) 4,700**

7. The area model helps in:

**Answer: (c) Breaking multiplication into parts**

8.  $324 \times 1 = ?$

**Answer: (c) 324**

9. Which gives the same product?

**Answer: (a)  $8 \times 25 = 4 \times 50$**

10. The product of two numbers is 0 if:

**Answer: (c) one number is 0**

---

### **B. Fill in the Blanks**

1. The product of any number and 1 is the **same** number.
  2. The product of any number and 0 is **0**.
  3. In  $45 \times 20$ , the number 45 is called the **multiplicand** and 20 is the **multiplier**.
  4.  $36 \times 100 = \mathbf{3600}$
  5.  $27 \times 10 = \mathbf{270}$
  6.  $17 \times 4 = (10 \times 4) + (7 \times 4)$
  7.  $12 \times 15 = (12 \times 10) + (12 \times 5)$
  8.  $5 \times 60 = (5 \times 6 \times 10)$
  9. Doubling and halving  $25 \times 16$  gives  $(50 \times 8)$
  10.  $243 \times 0 = \mathbf{0}$
- 

### **C. Write True or False**

1. 0 multiplied by any number gives 1. → **False**
  2.  $1 \times 95 = 95$ . → **True**
  3.  $15 \times 8 = 8 \times 15$ . → **True**
  4. The distributive property helps break a number for easier multiplication. → **True**
  5. Multiplication is repeated subtraction. → **False**
  6.  $50 \times 100 = 5000$ . → **True**
  7.  $4 \times (3 + 2) = (4 \times 3) + (4 \times 2)$ . → **True**
  8.  $9 \times 0 = 9$ . → **False**
- 

### **D. Very Short Answer Questions**

**1. Find the product:  $36 \times 5$**

$$\begin{aligned} &36 \times 5 \\ &= (30 \times 5) + (6 \times 5) \\ &= 150 + 30 \\ &= 180 \end{aligned}$$

**Answer: 180**

---

**2. Multiply  $123 \times 100$**

$$123 \times 100 = 12,300$$

**Answer: 12,300**

---

**3. Property shown by  $7 \times 4 = 4 \times 7$**

**Answer: Commutative Property**

---

**4. Find the missing number**

$$8 \times \square = 64$$

$$\begin{aligned} \square &= 64 \div 8 \\ &= 8 \end{aligned}$$

**Answer: 8**

---

**5. Multiply  $200 \times 6$  mentally**

$$200 \times 6 = 1200$$

**Answer: 1200**

---

**6. Write  $25 \times 16$  using doubling and halving**

$$\begin{aligned} &25 \times 16 \\ &= 50 \times 8 \end{aligned}$$

**Answer:  $50 \times 8$**

---

**7.  $1 \times 546 = \underline{\hspace{2cm}}$  (name the property)**

$1 \times 546 = 546$

**Property:** Identity Property

---

**8.  $0 \times 251 = \underline{\hspace{2cm}}$  (name the property)**

$0 \times 251 = 0$

**Property:** Zero Property

---

### **E. Short Answer Questions**

#### **1. Multiply $236 \times 12$**

$$\begin{array}{r} 236 \\ \times 12 \\ \hline 472 \\ 2360 \\ \hline 2832 \end{array}$$

**Answer: 2,832**

---

#### **2. Use area model to find $23 \times 15$**

$$\begin{aligned} 23 \times 15 \\ &= (20 + 3)(10 + 5) \\ &= 20 \times 10 + 20 \times 5 + 3 \times 10 + 3 \times 5 \\ &= 200 + 100 + 30 + 15 \\ &= 345 \end{aligned}$$

**Answer: 345**

---

#### **3. Show that:**

$$13 \times (10 + 2)$$

$$= 13 \times 12$$

$$= 156$$

RHS:

$$(13 \times 10) + (13 \times 2)$$

$$= 130 + 26$$

$$= 156$$

Therefore,

$$13 \times (10 + 2)$$

$$= (13 \times 10) + (13 \times 2)$$

Verified.

---

#### **4. Multiply $356 \times 1000$**

$$356 \times 1000$$

$$= 356000$$

**Answer: 356,000**

---

#### **5. Find $124 \times 25$ using doubling-halving**

$$124 \times 25$$

$$= 62 \times 50$$

$$= 31 \times 100$$

$$= 3100$$

**Answer: 3,100**

---

#### **6. Explain Commutative Property**

The order of factors can be changed without changing the product.

Example:

$$8 \times 5 = 40$$

$$5 \times 8 = 40$$

So,

$$8 \times 5 = 5 \times 8$$

---

**7. 45 pens cost ₹12 each**

$$45 \times 12$$

$$= 45 \times (10 + 2)$$

$$= 450 + 90$$

$$= 540$$

**Answer: ₹540**

---

**8. A packet has 24 pencils. How many pencils in 36 packets?**

$$24 \times 36$$

$$= 24 \times (30 + 6)$$

$$= 720 + 144$$

$$= 864$$

**Answer: 864 pencils**

---

**F. Long Answer Questions**

**1(a) Fruit seller sells 125 apples daily. How many in 7 days?**

$$125 \times 7 = 875$$

**Answer: 875 apples**

---

**1(b) In 15 days**

$$125 \times 15$$

$$= 125 \times (10 + 5)$$

$$= 1250 + 625$$

$$= 1875$$

**Answer: 1,875 apples**

---

**1(c) In 2 months (60 days)**

$$125 \times 60$$

$$= 7500$$

**Answer: 7,500 apples**

---

**2(a) Solve**

$$248 \times 36$$

$$= (248 \times 30) + (248 \times 6)$$

$$= 7440 + 1488$$

$$= 8928$$

**Part values**

$$248 \times 30 = 7440$$

$$248 \times 6 = 1488$$

---

**2(b) Verify**

$$7440 + 1488$$

$$= 8928$$

**Answer:  $248 \times 36 = 8,928$**

---

## Competency-Based Questions

### A. Assertion–Reason

1

Assertion:  $36 \times 25 = (36 \times 100) \div 4 \rightarrow$  True

Reason: Multiplying by 25 is same as multiplying by 100 and dividing by 4  $\rightarrow$  True

**Answer: (a)** Both are true and R explains A.

---

2

Assertion:  $6 \times 0 = 0 \rightarrow$  True

Reason: Multiplying any number by 0 gives 0  $\rightarrow$  True

**Answer: (a)**

---

3

Assertion: When multiplying by 100, digits shift one place left  $\rightarrow$  False

(They shift **two** places left.)

Reason: Each zero increases place value by one place  $\rightarrow$  True

**Answer: (d)** A is false but R is true.

---

## Case Study Based Questions

Given:

48 rows

125 plants in each row

**(a) Total plants**

$48 \times 125$

$= 6000$

**Answer: 6,000 plants**

---

**(b) Total yield**

Each plant gives 8 kg.

$$6000 \times 8$$

$$= 48,000 \text{ kg}$$

**Answer: 48,000 kg**

---

**(c) Total earning**

$$48,000 \times 25$$

$$= 12,00,000$$

**Answer: ₹12,00,000**

---

**(d) Tomatoes spoiled**

5% of 48,000

$$= 48,000 \times 5/100$$

$$= 2,400 \text{ kg}$$

**Answer: 2,400 kg wasted**

## CH – 7 : Shapes and Patterns

### Practice Time 7.1

**1. Row 1 uses block 1 O – 2 U – 2 O. Write Row 2 so that vertical columns alternate.**

Row 1:

O U U O O | O U U O O ...

To alternate columns, switch O and U.

**Row 2:**

U O O U U | U O O U U ...

---

**2. Draw a mini-mat where colours switch every two rows.**

**Colour Rule:**

- Rows 1–2 = Blue
- Rows 3–4 = Red
- Repeat

**O/U Rule:**

- Repeat 2 O – 2 U

Example:

Row 1: O O U U O O U U

Row 2: O O U U O O U U

Row 3: U U O O U U O O

Row 4: U U O O U U O O

---

**3. For O U U O O U U O ... determine the smallest repeating block.**

Pattern:

O U U | O U U | O U U

**Smallest repeating block = O U U**

---

**4. True or False**

"If Row 1 begins with U, Row 2 must also begin with U."

**Answer: False**

Reason: To make columns alternate, Row 2 may begin with O.

---

5. Design a border using starter U U followed by repeating 2 O – 1 U.

Pattern:

Starter: U U

Then:

O O U | O O U | O O U ...

Complete border:

U U O O U O O U O O U ...

---

### Practice Time 7.2

1. Propose a 5-step block and write two rows.

**PRACTICE TIME 7.2**

1. Proposed 5-step block:

O	U	O	U	U
---	---	---	---	---

Two rows:

Row 1: 

O	U	O	U	U	O	U	O	U	U
---	---	---	---	---	---	---	---	---	---

Row 2: 

U	O	U	U	O	U	O	U	U	O
---	---	---	---	---	---	---	---	---	---

2. Complete

Row 1 = 3 U, 2 O

To make every step opposite:

**Row 2 = 3 O, 2 U**

---

3. Rule for thick vertical bands

Use long runs:

**4 O – 4 U**

Pattern:

O O O O U U U U O O O O U U U U ...

---

#### 4. Starter and Repeating Block

**Starter:** A short beginning pattern before the main rule starts.

Example:

Starter = U U

**Repeating Block:** A pattern that repeats again and again.

Example:

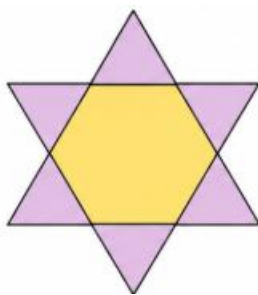
O O U

#### Practice Time 7.3 — Detailed Solutions

**Q1. Draw a patch with one hexagon surrounded by six equilateral triangles; colour triangles purple, hexagon yellow.**

##### Practice Time 7.3 - Q1

Draw a patch with one hexagon surrounded by six equilateral triangles; colour triangles purple, hexagon yellow.



##### Solution :

Hexagon is coloured yellow and all six equilateral triangles are coloured purple.

---

**Q2. Decide which sets tessellate by themselves.**

**(a) Regular Octagon**

**✗** Does not tessellate by itself.

Reason:

The interior angle of a regular octagon is **135°**.

$$135^\circ + 135^\circ = 270^\circ$$

$$360^\circ - 270^\circ = 90^\circ$$

A gap remains.

---

**(b) Equilateral Triangle**

**✓** Tessellates by itself.

Reason:

$$60^\circ + 60^\circ + 60^\circ + 60^\circ + 60^\circ + 60^\circ = 360^\circ$$

No gaps.

---

### (c) Square

✓ Tessellates by itself.

Reason:

$$90^\circ + 90^\circ + 90^\circ + 90^\circ = 360^\circ$$

No gaps.

Answer:

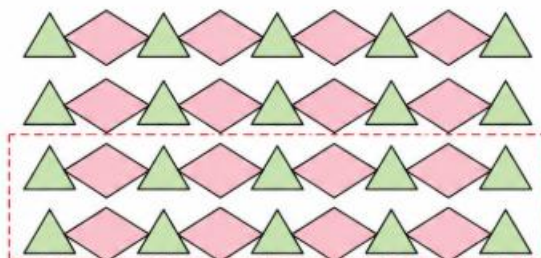
- Regular Octagon → ✗ No
  - Equilateral Triangle → ✓ Yes
  - Square → ✓ Yes
- 

**Q3. Extend a given pattern of triangles and rhombuses by two rows.**

Answer:

#### Practice Time 7.3 - Q3

Extend a given pattern of triangles and rhombuses by two rows, maintaining  $360^\circ$  at each vertex.



#### Solution :

The pattern is extended by two more rows as shown. Triangles and rhombuses meet at each vertex such that the angles around every vertex add up to  $360^\circ$ .

---

**Q4. Why can regular pentagons not tile the plane alone?**

Answer:

Regular pentagons cannot tile the plane by themselves because their interior angles are  $108^\circ$ , and a whole number of  $108^\circ$  angles cannot add exactly to  $360^\circ$  without leaving gaps.

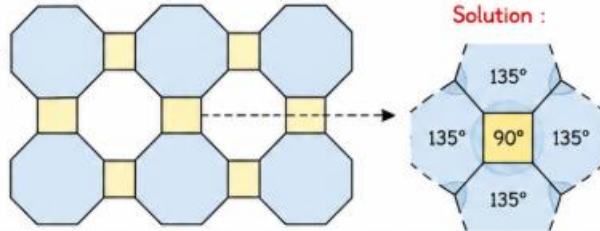
---

**Q5. Show how regular octagons tile with small squares filling gaps; label one meeting point with the angles.**

### Diagram

#### Practice Time 7.3 - Q5

Show how regular octagons tile with small squares filling gaps; label one meeting point with the angles.



#### Solution :

At one meeting point :  
 $135^\circ + 90^\circ + 135^\circ = 360^\circ$

So, regular octagons tile the plane with small squares filling the gaps.

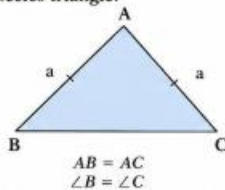
### Practice Time 7.4

**1. Name the triangle formed by joining two congruent right triangles along equal legs.**

**Answer: Isosceles Triangle**

**2. Sketch an Isosceles Triangle**

2. Isosceles triangle:



**3. Choose correct statements**

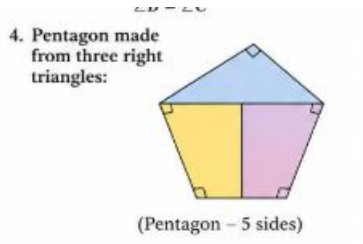
(i) An equilateral triangle is always isosceles.

True

(ii) A scalene triangle has two equal angles.

False

**4. Make a pentagon from three right triangles.**



## 5. Measure angles in any triangle and state total.

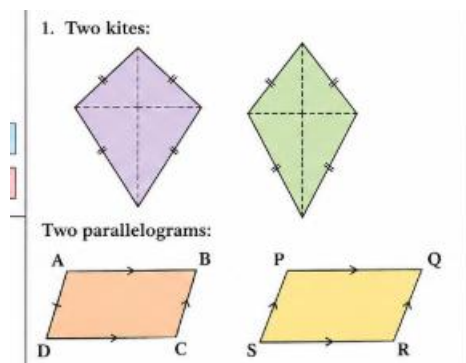
Example:

$$50^\circ + 60^\circ + 70^\circ = 180^\circ$$

**Sum of angles of every triangle =  $180^\circ$**

## Practice Time 7.5

### 1. Draw two kites and two parallelograms



### 2. True or False

(i) Every rectangle is a parallelogram.

✓ True

(ii) Every rhombus is a square.

✗ False

(iii) A square is both a rectangle and a rhombus.

✓ True

### 3. Match

(i) One pair of parallel sides → **Trapezium**

(ii) Four right angles, sides unequal → **Rectangle**

(iii) Diagonals bisect each other; all sides equal → **Rhombus**

---

**4. A quadrilateral has opposite sides equal and parallel, but angles are not right angles.**

**Name:** Parallelogram

**Two Properties:**

1. Opposite sides are equal.
  2. Opposite angles are equal.
- 

### Practice Time 7.6

**1. Which tans are congruent and which have a right angle?**

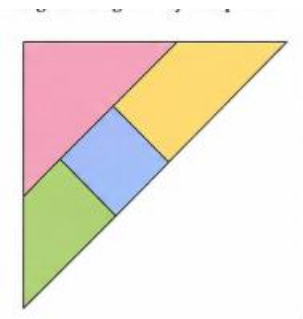
**Congruent pieces:**

- Two large triangles
- Two small triangles

**Right-angled pieces:**

- All five triangles
- 

**2. Form a figure using exactly five pieces.**

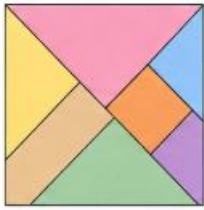


**3. Why can the parallelogram tan not be mirrored by sliding or rotation alone?**

Because its mirror image is different and requires **flipping**.

---

**4. Assemble a larger square using all seven pieces.**

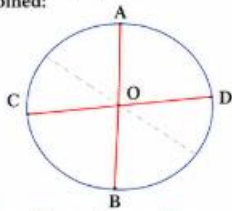


---

**Practice Time 7.7**

**1. Draw two non-perpendicular diameters and join endpoints.**

1. Two non-perpendicular diameters joined:

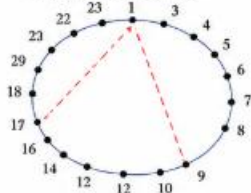


Quadrilateral formed: Rectangle

---

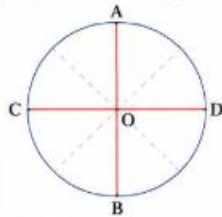
**2. 24-point circle, jump 8 points each time.**

2. 24-point circle, jumping 8 points each time:



Segments before repetition = 3

(For reference in Q3)



This forms a square.

---

**3. True or False**

"Joining endpoints of any two diameters always produces a square."

**✗ False**

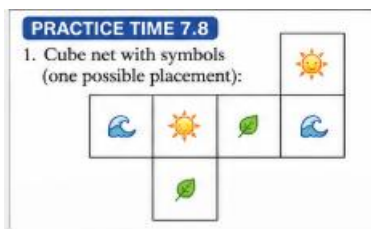
Reason:

A square forms only when diameters are perpendicular.

---

## Practice Time 7.8

### 1. Place symbols sun, leaf, wave on a cube net.



---

### 2. For $n = 4$ , compute shell size and total unit cubes.

Total cubes:

$$4^3 = 64$$

Shell cubes:

$$4^3 - 2^3 = 64 - 8 = 56$$

**Answer:**

- Shell size = 56 cubes
- Total cubes = 64 cubes

---

### 3. For a $4 \times 4 \times 4$ painted cube

Exactly 2 painted faces:

$$12(n - 2) = 12(4 - 2) = 24$$

No paint:

$$(n - 2)^3 = (4 - 2)^3 = 8$$

**Answer:**

- Exactly 2 painted faces = 24 cubes
- No paint = 8 cubes

---

### 4. True or False

"Two faces that share an edge can be opposite faces."

✗ False

Reason:

Faces sharing an edge are adjacent, not opposite.

---

**5. List faces, edges and vertices of a cube.**

**Property Number**

Faces 6

Edges 12

Vertices 8

---

**Practice Time 7.9**

**1. An icosahedron has \_\_\_\_ triangular faces and \_\_\_\_ vertices.**

**Answer:**

- 20 triangular faces
  - 12 vertices
- 

**2. A dodecahedron has \_\_\_\_ pentagonal faces and \_\_\_\_ edges.**

**Answer:**

- 12 pentagonal faces
  - 30 edges
- 

**3. How many faces meet at a vertex?**

**Icosahedron:** 5 triangular faces

**Dodecahedron:** 3 pentagonal faces

---

**4. Identify which faces are congruent.**

**Icosahedron:** All triangular faces are congruent.

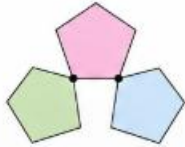
**Dodecahedron:** All pentagonal faces are congruent.

---

**5. Sketch three pentagons meeting at a point.**

Draw three regular pentagons touching at one common vertex:

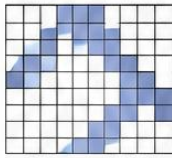
5. Three pentagons meeting at a point:



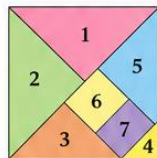
**NCERT CORNER**

## NCERT CORNER – SOLUTIONS

1. Complete the pattern.



Tangram

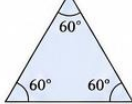


(Activity answer: complete the same over-under weaving pattern on grid paper to get the full design.)

2. Equilateral triangle activity

(a) Yes. All three angles are equal.

Each angle =  $60^\circ$ .

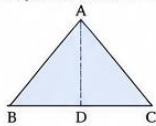


(b) After cutting in half:

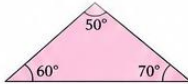
Each new triangle is isosceles

with two equal sides.

(Two equal sides in each new triangle.)



(c) No. In a scalene triangle, no two or more angles are equal.



- 1, 2 – Two large triangles
- 3 – One medium triangle
- 4, 5 – Two small triangles
- 6 – One square
- 7 – One parallelogram

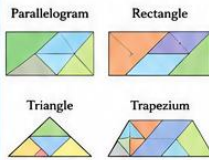
(a) Same: All are plane figures made of line segments and are closed shapes.

Different: Different shapes, sizes and number of sides.

(b) Angles: Triangles have one right angle and two acute angles; square has four right angles; parallelogram has opposite angles equal.

(c) Sides: Some have equal sides (square), some do not. All sides are straight.

Make the following shapes  
(One possible way)



## EXAM TIME – SOLUTIONS

A. Multiple Choice Questions (MCQs)

1. (c) Squares
2. (b) Parallelogram
3. (a) Over
4. (b) 8
5. (b) 3
6. (b) Rectangle

B. Fill in the Blanks

1. Tessellation
2. Warp, Weft
3. Rectangle, Rhombus
4. 6, 12, 8
5. 20, 12
6. 8

C. True or False

1. False
2. True
3. False
4. False
5. True
6. True

D. Match the Following

Column-I	Column-II
1. Two pairs of adjacent sides equal	(d) Kite
2. Four right angles; sides not all equal	(a) Rectangle
3. Opposite sides equal and parallel	(b) Parallelogram
4. All sides equal; angles not all right	(c) Rhombus

E. Very Short Answer Type Questions

1. Warp
2.  $90^\circ$
3.  $180^\circ$
4. 12
5. Rectangle

F. Short Answer Type Questions

1. Row 1: O O O U (repeat)  
Row 2: U U U O (repeat)
2. Each interior angle of hexagon =  $120^\circ$ .  
 $3 \times 120^\circ = 360^\circ$ .  
So, they tessellate without gaps.
3.  $12(n-2) = 12(4-2) = 24$  cubes
4. At each vertex of an icosahedron, 5 triangular faces meet.

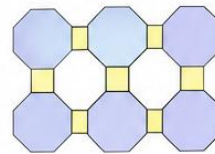


5 faces meet here

5. (i) Opposite sides are parallel.  
(ii) Opposite sides are equal.

6. A tessellation using regular octagons and small squares.

At each vertex:  $135^\circ + 90^\circ + 135^\circ = 360^\circ$ .  
So, it covers the plane without gaps.



G. Long Answer Type Questions

1. For icosahedron:

Given  $3F = 2E$ ,  $5V = 3F$   
and  $V - E + F = 2$

$F = 20$  (triangular faces)  
 $3F = 2E \Rightarrow 3(20) = 2E$

$\Rightarrow E = 30$

$V - E + F = 2$

$V - 30 + 20 = 2$

$V = 12$

Faces (F)	Edges (E)	Vertices (V)
20	30	12

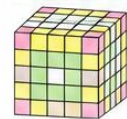


2. Painted cube generalisation ( $n \times n \times n$ )

- (a) 3 faces painted (corner cubes) = 8
- (b) 2 faces painted (edge cubes) =  $12(n-2)$
- (c) 1 face painted (face-centre cubes) =  $6(n-2)^2$
- (d) 0 faces painted (interior cubes) =  $(n-2)^3$

For  $n = 5$ :

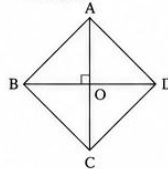
Type	Number of cubes
3 faces painted	8
2 faces painted	$12(5-2) = 36$
1 face painted	$6(5-2)^2 = 54$
0 faces painted	$(5-2)^3 = 27$



- 3 faces painted
- 2 faces painted
- 1 face painted
- 0 faces painted

3. Rhombus dissection:

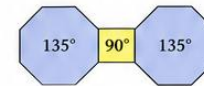
A rhombus cut along both diagonals gives four congruent right triangles.



- (i) Area is preserved.
- (ii) Different arrangements form different shapes.
- (iii) Perimeter may change although area remains the same.

4. At a vertex in 4.8.8 tiling:

Square ( $90^\circ$ ) + Octagon ( $135^\circ$ ) + Octagon ( $135^\circ$ ) =  $360^\circ$   
So, the vertex condition holds.



Let  $S$  = number of squares,  
 $O$  = number of octagons.  
In a large interior patch:  $S = O$   
Area in terms of  $S$ ,  $O$  and side  $s$ :  
Area of square =  $s^2$   
Area of octagon =  $2(1 + \sqrt{2})s^2$   
Total area,  $A = Ss^2 + 2O(1 + \sqrt{2})s^2$   
Since  $S = O$ ,  
 $A = S(3 + 2\sqrt{2})s^2$

H. Assertion-Reason Questions

Q. No.	Answer	Reason
1.	(a)	Both true and R explains A.
2.	(d)	A is false but R is true.
3.	(a)	Both true and R explains A.
4.	(c)	A is true but R is false.
5.	(a)	Both true and R explains A.

I. Case Study Based Questions

1.  $135^\circ + 90^\circ + 135^\circ = 360^\circ$ .  
So, vertex condition holds.
2. In large interior patch,  $S = O$  (squares = octagons).
3.  $A = Ss^2 + 2O(1 + \sqrt{2})s^2$   
Since  $S = O \Rightarrow A = S(3 + 2\sqrt{2})s^2$

J. Maths Booster – Circle Star Maker

Jump 5

Jump 4

1. 12 equally spaced points marked.
2. Jump 5 each time  $\rightarrow$  12 lines.
3. Jump 4 each time  $\rightarrow$  4 small loops.
4. Jump 5 makes one big star; Jump 4 makes four small loops.
5. Changing jump number changes the order of joining points, giving different patterns.

**Q1. Draw the following pattern on a grid paper. Complete the rest of the grid to get the full design.**

**What to do?**

The given figure shows only a part of a woven design. You have to continue the same arrangement of vertical and horizontal strips.

**Rule Used**

- Continue the same over-under weaving pattern.
- Maintain symmetry on all four sides.
- The central design should look balanced.

**Answer**

Complete the remaining empty squares by repeating the same strip arrangement shown in the completed portion.

This is an **activity-based question**, so the answer is the completed grid pattern drawn on graph paper.

---

**Q2. Equilateral Triangle Activity**

**(a) Check if all the angles of an equilateral triangle are equal.**

**Solution**

An equilateral triangle has:

- Three equal sides
- Three equal angles

Each angle measures:

$$180^\circ \div 3 = 60^\circ$$

**Answer**

Yes, all three angles are equal.

Each angle = **60°**

---

**(b) Cut the equilateral triangle into half. How many sides of each new triangle are equal?**

**Explanation**

When an equilateral triangle is cut from the top vertex to the midpoint of the base:

Two triangles formed:

$\triangle ABD$  and  $\triangle ADC$

Each has:

$AB = AC$  (original equal sides)

$AD =$  common height

The two small triangles are mirror images.

**Answer**

Each new triangle has **two equal sides**.

Therefore each new triangle is an **isosceles triangle**.

---

**(c) Check in scalene triangles whether any two or more angles are equal.**

**Solution**

A scalene triangle has:

- No sides equal
- No angles equal

Example:

$50^\circ, 60^\circ, 70^\circ$

All are different.

**Answer**

No.

In a scalene triangle, no two angles are equal.

---

## **Tangram**

### **Name the Tangram Pieces**

A tangram contains:

1. Two large triangles
2. One medium triangle
3. Two small triangles
4. One square
5. One parallelogram

Total = 7 pieces

---

### **Tangram (a)**

**How are they same or different?**

#### **Same**

- All are plane figures.
- All are closed shapes.
- All are made of straight lines.

#### **Different**

- Different shapes
- Different sizes
- Different number of sides

#### **Answer**

The pieces are similar because they are closed shapes made of line segments, but they differ in shape and size.

---

### **Tangram (b)**

**What do you notice about the angles?**

#### **Answer**

Most triangles have:

- One right angle ( $90^\circ$ )
- Two acute angles

The square has four right angles.

The parallelogram has opposite angles equal.

---

## **Tangram (c)**

**What do you notice about the sides?**

**Answer**

Some pieces have equal sides while others do not.

The square has all sides equal.

The triangles and parallelogram have different side lengths.

## **Which Shape Am I?**

**1. All my angles are right angles, but all my sides are not equal.**

**Solution**

Rectangle:

- Four right angles
- Opposite sides equal
- All sides not equal

**Answer**

**Rectangle**

---

**2. All my sides are equal, but all my angles are not.**

**Solution**

Rhombus:

- Four equal sides
- Angles not all equal

**Answer**

**Rhombus**

---

**3. My opposite angles are equal, but my sides do not make a right angle.**

**Solution**

Parallelogram:

- Opposite angles equal
- No right angles

**Answer**

**Parallelogram**

---

**4. Two pairs of sides are equal, but they do not make a right angle.**

**Solution**

Kite:

- Two pairs of adjacent equal sides
- Usually does not have right angles

**Answer**

**Kite**

---

**5. All my sides make right angles with each other and are equal.**

**Solution**

Square:

- Four equal sides
- Four right angles

**Answer**

**Square**

---

**6. My opposite angles are equal and so are my sides.**

**Solution**

Rhombus:

- All sides equal
- Opposite angles equal

**Answer**

**Rhombus**

---

**7. My opposite angles are equal and my sides make right angles.**

**Solution**

Rectangle:

- Opposite angles equal
- Four right angles

**Answer**

**Rectangle**

## **EXAM TIME**

### **A. Multiple Choice Questions (MCQs)**

**1. Which set tessellates by itself?**

- (a) Regular octagons
- (b) Regular pentagons
- (c) Squares
- (d) Circles

**Solution**

- Regular octagons leave gaps.

- Regular pentagons do not tessellate.
- Circles leave gaps.
- Squares fit together without gaps.

**Answer**

(c) Squares

---

**2. A quadrilateral with opposite sides parallel and equal, but no right angles is a:**

- (a) Rectangle
- (b) Parallelogram
- (c) Kite
- (d) Trapezium

**Solution**

A parallelogram has:

- Opposite sides equal
- Opposite sides parallel
- Angles are not necessarily  $90^\circ$

**Answer**

(b) Parallelogram

---

**3. In weaving notation, O stands for:**

- (a) Over
- (b) Under
- (c) Opposite
- (d) Outside

**Solution**

In weaving:

- O = Over

- U = Under

**Answer**

(a) Over

---

**4. A cube has how many vertices?**

- (a) 6
- (b) 8
- (c) 10
- (d) 12

**Answer**

(b) 8

---

**5. At each vertex of a dodecahedron, how many faces meet?**

- (a) 2
- (b) 3
- (c) 4
- (d) 5

**Solution**

A dodecahedron has:

- 12 pentagonal faces
- 20 vertices
- 3 faces meet at each vertex

**Answer**

(b) 3

---

**6. The figure formed by joining endpoints of two diameters of any circle is:**

- (a) Square
- (b) Rectangle

- (c) Kite
- (d) Rhombus

**Diagram**

Joining A-B-C-D forms a rectangle.

**Answer**

(b) Rectangle

---

**B. Fill in the Blanks**

1.

A pattern that covers a surface without gaps is called a \_\_\_\_\_.

**Answer**

Tessellation

---

2.

The vertical set in weaving is the \_\_\_\_\_ and the horizontal set is the \_\_\_\_\_.

**Answer**

Warp, Weft

---

3.

A square is a special \_\_\_\_\_ and also a special \_\_\_\_\_.

**Solution**

A square has:

- All properties of a rectangle
- All properties of a rhombus

**Answer**

Rectangle, Rhombus

---

4.

A cube has \_\_\_\_\_ faces, \_\_\_\_\_ edges and \_\_\_\_\_ vertices.

**Answer**

6, 12, 8

---

5.

An icosahedron has \_\_\_\_\_ triangular faces, while a dodecahedron has \_\_\_\_\_ pentagonal faces.

**Answer**

20, 12

---

6.

In a  $3 \times 3 \times 3$  painted cube, the number of corner cubes is \_\_\_\_\_.

**Solution**

Every cube has 8 corners.

**Answer**

8

---

**C. True or False**

1.

Regular pentagons tessellate on their own without gaps.

**False**

Reason: Their interior angle ( $108^\circ$ ) does not fit exactly into  $360^\circ$ .

---

2.

Six equilateral triangles can meet around a point.

True

Reason:

$$6 \times 60^\circ = 360^\circ$$

---

3.

Adjacent faces of a cube can be opposite faces.

False

Adjacent faces share an edge; opposite faces do not.

---

4.

In a kite, all four sides are equal.

False

A kite has only two pairs of adjacent equal sides.

---

5.

Joining endpoints of two diameters always yields a rectangle.

True

Each angle subtends a semicircle and is  $90^\circ$ .

---

6.

A dodecahedron has 30 edges.

True

---

**D. Match the Following**

Column I	Column II
1. Two pairs of adjacent sides equal	Kite
2. Four right angles; sides not all equal	Rectangle
3. Opposite sides equal and parallel	Parallelogram
4. All sides equal; angles not all right	Rhombus

**Answers**

1 → (d) Kite

2 → (a) Rectangle

3 → (b) Parallelogram

4 → (c) Rhombus

---

**E. Very Short Answer Questions**

1. Name the vertical set of threads in weaving.

**Answer**

**Warp**

---

2. State the interior angle of a square.

**Answer**

**90°**

---

3. Give the sum of interior angles of any triangle.

**Answer**

**180°**

---

4. How many edges does a cube have?

**Answer**

**12**

---

**5. Name the quadrilateral formed by joining endpoints of any two diameters of a circle.**

**Answer**

**Rectangle**

**F. Short Answer Questions**

---

**1. Provide a weaving rule using block 3 O – 1 U and indicate a Row 2 start that alternates columns.**

**Solution**

Given block:

**3 O – 1 U**

Row 1:

O O O U | O O O U | O O O U ...

To alternate columns, Row 2 should begin oppositely.

Row 2:

U U U O | U U U O | U U U O ...

**Answer**

**Row 1:** O O O U (repeat)

**Row 2:** U U U O (repeat)

---

**2. Give a clear reason why regular hexagons tessellate neatly.**

**Solution**

Interior angle of a regular hexagon =  $120^\circ$

Three hexagons can meet at one point.

$$120^\circ + 120^\circ + 120^\circ = 360^\circ$$

Since the angles make exactly  $360^\circ$ , no gaps remain.

### Answer

Regular hexagons tessellate because three  $120^\circ$  angles meet at a point and add up to  $360^\circ$  without gaps.

---

**3. For a  $4 \times 4 \times 4$  painted cube, determine how many unit cubes have exactly two faces painted.**

### Solution

Formula:

Number of cubes with exactly 2 painted faces

$$12(n - 2)$$

For  $n = 4$

$$12(4 - 2) = 24$$

### Answer

24 cubes

---

**4. State how many faces meet at a vertex in an icosahedron and add a small labelled sketch.**

### Solution

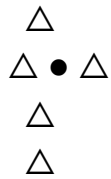
An icosahedron has:

- 20 triangular faces
- 12 vertices

At each vertex:

**5 triangular faces meet**

**Sketch**



● = Vertex

**Answer**

**5 triangular faces meet at each vertex.**

---

**5. List two properties of a parallelogram that do not hold for all kites.**

**Solution**

Parallelogram:

1. Opposite sides are parallel.
2. Opposite sides are equal.

Kites do not always satisfy these properties.

**Answer**

- Opposite sides are parallel.
  - Opposite sides are equal.
- 

**6. Describe one mixed-shape tessellation constructed during practice.**

**Solution**

A common mixed tessellation uses:

- Regular octagons
- Small squares

At each vertex:

$$135^\circ + 90^\circ + 135^\circ = 360^\circ$$

**Answer**

A tessellation made of regular octagons and small squares covers the surface without gaps because the angles at each meeting point add up to  $360^\circ$ .

---

## G. Long Answer Questions

---

1. Using  $3F = 2E$  and  $5V = 3F$  with Euler's relation  $V - E + F = 2$ , derive  $V$ ,  $E$ ,  $F$  for an icosahedron.

### Step 1

Each face is a triangle.

Therefore

$$3F = 2E$$

---

### Step 2

Given:

$$F = 20$$

Therefore

$$3(20) = 2E$$

$$60 = 2E$$

$$E = 30$$

---

### Step 3

Use Euler's Formula

$$V - E + F = 2$$

$$V - 30 + 20 = 2$$

$$V - 10 = 2$$

$$V = 12$$

**Answer**

Quantity	Value
----------	-------

Faces (F)	20
-----------	----

Edges (E)	30
-----------	----

Vertices (V)	12
--------------	----

---

## 2. Painted Cube Generalisation

For an  $n \times n \times n$  painted cube:

### (a) Three faces painted

Corner cubes

$$= 8$$

---

### (b) Two faces painted

Edge cubes

$$= 12(n - 2)$$

---

### (c) One face painted

Face-centre cubes

$$= 6(n - 2)^2$$

---

### (d) No faces painted

Interior cubes

$$= (n - 2)^3$$

---

### Verify for $n = 5$

Three faces painted

$$= 8$$

Two faces painted

$$= 12(5 - 2)$$

$$= 36$$

One face painted

$$= 6(3^2)$$

$$= 54$$

No paint

$$= 3^3$$

$$= 27$$

**Answer**

Type	Count
------	-------

3 faces painted	8
-----------------	---

2 faces painted	36
-----------------	----

1 face painted	54
----------------	----

0 faces painted	27
-----------------	----

---

### 3. Rhombus Dissection

#### Solution

When both diagonals of a rhombus are drawn:

The rhombus is divided into 4 congruent right triangles.

#### Observations

1. Area remains the same because all pieces are used.
2. Different arrangements produce different shapes.
3. Perimeters may change although area remains constant.

**Answer**

Different polygons formed from the four triangles have the same area but may have different perimeters because their outer boundaries change.

## COMPETENCY-BASED QUESTIONS

### A. Assertion–Reason Questions

#### Codes

- (a) Both A and R are true and R is the correct explanation of A.
  - (b) Both A and R are true but R is not the correct explanation of A.
  - (c) A is true but R is false.
  - (d) A is false but R is true.
- 

1.

#### Assertion (A):

Regular pentagons cannot tessellate the plane by themselves.

#### Reason (R):

The interior angle of a regular pentagon is  $108^\circ$ , which does not divide  $360^\circ$  without leaving a gap.

#### Solution

Interior angle of regular pentagon =  $108^\circ$

$360 \div 108 = 3.33\dots$

Not a whole number.

Therefore gaps remain.

A is True.

R is True.

R correctly explains A.

#### Answer

(a)

---

2.

**Assertion (A):**

Joining endpoints of any two diameters gives a square.

**Reason (R):**

Each interior angle of the formed quadrilateral subtends a semicircle and is  $90^\circ$ .

**Solution**

The quadrilateral formed is always a rectangle.

It becomes a square only when diameters are perpendicular.

Therefore:

A is False.

R is True.

**Diagram**



ABCD is generally a rectangle.

**Answer**

(d)

---

3.

**Assertion (A):**

In a  $3 \times 3 \times 3$  painted cube, 12 unit cubes have exactly two faces painted.

**Reason (R):**

The edge cubes that are not corners each have two painted faces, and there are 12 edges.

**Solution**

For  $n = 3$

Exactly two painted faces

$$= 12(n - 2)$$

$$= 12(1)$$

$$= 12$$

A is True.

R is True.

R explains A.

**Answer**

(a)

---

4.

**Assertion (A):**

An equilateral triangle is always isosceles.

**Reason (R):**

An isosceles triangle is defined as having exactly two equal sides.

**Solution**

An equilateral triangle has three equal sides.

Therefore it satisfies the condition of having at least two equal sides.

A is True.

R is False because "exactly two equal sides" is not the accepted definition here.

**Answer**

(c)

---

5.

**Assertion (A):**

An icosahedron and a dodecahedron have the same number of edges.

**Reason (R):**

They are duals of each other.

**Solution**

Icosahedron:

- Faces = 20
- Edges = 30

Dodecahedron:

- Faces = 12
- Edges = 30

Both have 30 edges.

Also, they are dual solids.

Therefore:

A is True.

R is True.

R explains the relationship.

**Answer**

(a)

---

## **B. CASE STUDY BASED QUESTIONS**

Given:

- Square angle =  $90^\circ$
- Octagon angle =  $135^\circ$

At a vertex:

Octagon + Square + Octagon

---

**Q1. Show that the vertex condition holds.**

**Solution**

At one vertex:

$$135^\circ + 90^\circ + 135^\circ = 360^\circ$$

Since the total angle is  $360^\circ$ , there is no gap.

**Answer**

The vertex condition holds because the angles add exactly to  $360^\circ$ .

---

**Q2. Prove that  $S = O$ .**

Let:

$S$  = number of squares

$O$  = number of octagons

**Solution**

In a large repeating pattern:

Every square is surrounded by octagons.

Every octagon is connected to squares.

Counting the shared sides and vertices gives equal numbers.

**Answer**

**$S = O$**

The number of squares equals the number of octagons in a large interior patch.

---

**Q3. Express area in terms of  $O$ ,  $S$  and side length  $s$ .**

**Step 1**

Area of one square

$$s^2$$

$$\sigma$$

$n$

$$\bar{x} \approx -0.01, ; s^2 \approx 1.934$$

$$\bar{x} = -0.01, s^2 \approx 1.934$$

---

### Step 2

Area of one regular octagon

$$2(1 + \sqrt{2})s^2$$

---

### Step 3

Total area

$$A = Ss^2 + 20(1 + \sqrt{2})s^2$$

---

Since  $S = O$

Replace  $O$  by  $S$ :

$$A = S(3 + 2\sqrt{2})s^2$$

**Answer**

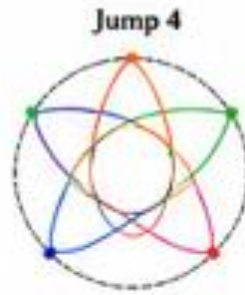
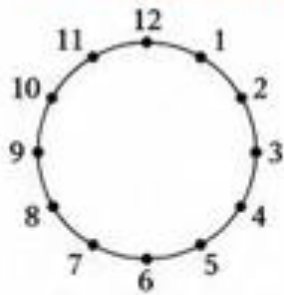
$$A = S(3 + 2\sqrt{2})s^2$$

---

**C. MATHS BOOSTER – Circle Star Maker**

---

### J. Maths Booster – Circle Star Maker



1. 12 equally spaced points marked.
  2. Jump 5 each time → 12 lines.
  3. Jump 4 each time → 4 small loops.
  4. Jump 5 makes one big star; Jump 4 makes four small loops.
  5. Changing jump number changes the order of joining points, giving different patterns.
- 

**Q1. Draw a circle and mark 12 equally spaced points.**

**Q2. Jump 5 each time.**

Sequence:

$1 \rightarrow 6 \rightarrow 11 \rightarrow 4 \rightarrow 9 \rightarrow 2 \rightarrow 7 \rightarrow 12 \rightarrow 5 \rightarrow 10 \rightarrow 3 \rightarrow 8 \rightarrow 1$

**Solution**

All 12 points are visited once.

Therefore:

**Answer**

**12 line segments are drawn.**

---

**Q3. Jump 4 each time.**

Sequence:

$1 \rightarrow 5 \rightarrow 9 \rightarrow 1$

First loop

$2 \rightarrow 6 \rightarrow 10 \rightarrow 2$

Second loop

3 → 7 → 11 → 3

Third loop

4 → 8 → 12 → 4

Fourth loop

**Answer**

4 small loops

---

**Q4. Which drawing makes one big star?**

**Solution**

Jump 5 visits every point before returning.

It creates one continuous large star.

Jump 4 creates several smaller loops.

**Answer**

- Jump 5 → One big star
  - Jump 4 → Four small loops
- 

**Q5. Why does changing the jump number change the pattern?**

**Solution**

The jump number changes how points are connected.

Some jump numbers visit all points in one path.

Others repeat early and create smaller loops.

**Answer**

Changing the jump number changes the order in which points are joined, so different patterns and loops are formed.

## Ch – 8 : Weight and Capacity

### Practice Time 8.1

#### 1. Convert into grams

(a)  $2 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

$$1 \text{ kg} = 1000 \text{ g}$$

$$2 \text{ kg} = 2 \times 1000 \text{ g}$$

$$= \mathbf{2000 \text{ g}}$$

---

(b)  $4 \text{ kg } 250 \text{ g} = \underline{\hspace{2cm}} \text{ g}$

$$4 \text{ kg} = 4000 \text{ g}$$

$$4000 \text{ g} + 250 \text{ g}$$

$$= \mathbf{4250 \text{ g}}$$

---

(c)  $6 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

$$6 \text{ kg} = 6 \times 1000$$

$$= \mathbf{6000 \text{ g}}$$

---

#### 2. Convert into kilograms and grams

(a)  $8500 \text{ g} = \underline{\hspace{2cm}} \text{ kg } \underline{\hspace{2cm}} \text{ g}$

$$8500 \text{ g} = 8000 \text{ g} + 500 \text{ g}$$

$$= \mathbf{8 \text{ kg } 500 \text{ g}}$$

---

(b)  $3250 \text{ g} = \underline{\hspace{2cm}} \text{ kg } \underline{\hspace{2cm}} \text{ g}$

$$3250 \text{ g} = 3000 \text{ g} + 250 \text{ g}$$

$$= \mathbf{3 \text{ kg } 250 \text{ g}}$$

---

(c)  $10250 \text{ g} = \underline{\quad} \text{ kg } \underline{\quad} \text{ g}$

$$10250 \text{ g} = 10000 \text{ g} + 250 \text{ g}$$

$$= \mathbf{10 \text{ kg } 250 \text{ g}}$$

---

### 3. Convert into milligrams

(a)  $5 \text{ g} = \underline{\quad} \text{ mg}$

$$1 \text{ g} = 1000 \text{ mg}$$

$$5 \text{ g} = 5 \times 1000$$

$$= \mathbf{5000 \text{ mg}}$$

---

(b)  $12 \text{ g} = \underline{\quad} \text{ mg}$

$$12 \times 1000$$

$$= \mathbf{12000 \text{ mg}}$$

---

(c)  $0.5 \text{ g} = \underline{\quad} \text{ mg}$

$$0.5 \times 1000$$

$$= \mathbf{500 \text{ mg}}$$

---

### Practice Time 8.2

#### 1. Add

(a)  $4 \text{ kg } 350 \text{ g} + 2 \text{ kg } 150 \text{ g}$

$$\text{kg: } 4 + 2 = 6$$

$$\text{g: } 350 + 150 = 500$$

$$\text{Answer} = \mathbf{6 \text{ kg } 500 \text{ g}}$$

---

(b)  $6 \text{ kg } 750 \text{ g} + 3 \text{ kg } 125 \text{ g}$

$$\text{kg: } 6 + 3 = 9$$

$$\text{g: } 750 + 125 = 875$$

Answer = **9 kg 875 g**

---

**(c) 2 kg 500 g + 7 kg 250 g**

$$\text{kg: } 2 + 7 = 9$$

$$\text{g: } 500 + 250 = 750$$

Answer = **9 kg 750 g**

---

## **2. Subtract**

**(a) 8 kg 400 g – 3 kg 200 g**

$$\text{kg: } 8 - 3 = 5$$

$$\text{g: } 400 - 200 = 200$$

Answer = **5 kg 200 g**

---

**(b) 5 kg 50 g – 2 kg 450 g**

$$\text{Borrow } 1 \text{ kg} = 1000 \text{ g}$$

$$5 \text{ kg } 50 \text{ g} = 4 \text{ kg } 1050 \text{ g}$$

$$1050 - 450 = 600 \text{ g}$$

$$4 - 2 = 2 \text{ kg}$$

Answer = **2 kg 600 g**

---

**(c) 10 kg – 4 kg 250 g**

$$10 \text{ kg} = 9 \text{ kg } 1000 \text{ g}$$

$$1000 - 250 = 750 \text{ g}$$

$$9 - 4 = 5 \text{ kg}$$

Answer = **5 kg 750 g**

---

### 3. Multiply

**(a) 2 kg 250 g  $\times$  3**

$$2250 \text{ g} \times 3$$

$$= 6750 \text{ g}$$

$$= \mathbf{6 \text{ kg } 750 \text{ g}}$$

---

**(b) 4 kg 125 g  $\times$  5**

$$4125 \text{ g} \times 5$$

$$= 20625 \text{ g}$$

$$= \mathbf{20 \text{ kg } 625 \text{ g}}$$

---

**(c) 6 kg 500 g  $\times$  2**

$$6500 \text{ g} \times 2$$

$$= 13000 \text{ g}$$

$$= \mathbf{13 \text{ kg}}$$

---

**(d) 3 kg 750 g  $\times$  4**

$$3750 \text{ g} \times 4$$

$$= 15000 \text{ g}$$

$$= \mathbf{15 \text{ kg}}$$

---

### 4. Divide

**(a) 8 kg 400 g  $\div$  4**

$$8400 \text{ g} \div 4$$

$$= 2100 \text{ g}$$

$$= \mathbf{2 \text{ kg } 100 \text{ g}}$$

---

**(b) 6 kg 300 g  $\div$  3**

$$6300 \text{ g} \div 3$$

$$= 2100 \text{ g}$$

$$= \mathbf{2 \text{ kg } 100 \text{ g}}$$

---

**(c) 9 kg 600 g  $\div$  6**

$$9600 \text{ g} \div 6$$

$$= 1600 \text{ g}$$

$$= \mathbf{1 \text{ kg } 600 \text{ g}}$$

---

**(d) 12 kg 450 g  $\div$  5**

$$12450 \text{ g} \div 5$$

$$= 2490 \text{ g}$$

$$= \mathbf{2 \text{ kg } 490 \text{ g}}$$

---

## **5. Word Problems**

**(a)**

$$4 \text{ kg } 750 \text{ g} + 3 \text{ kg } 250 \text{ g}$$

$$= 8 \text{ kg}$$

$$\text{Answer} = \mathbf{8 \text{ kg}}$$

---

**(b)**

$$\text{Bought} = 8 \text{ kg } 500 \text{ g}$$

$$\text{Sold} = 5 \text{ kg } 750 \text{ g}$$

$$8 \text{ kg } 500 \text{ g} = 7 \text{ kg } 1500 \text{ g}$$

$$7 \text{ kg } 1500 \text{ g} - 5 \text{ kg } 750 \text{ g}$$

$$= \mathbf{2 \text{ kg } 750 \text{ g}}$$

---

(c)

One chocolate = 125 g

12 chocolates

$$125 \times 12$$

$$= 1500 \text{ g}$$

$$= \mathbf{1 \text{ kg } 500 \text{ g}}$$

---

(d)

Total pulses = 25 kg 500 g

Sold = 12 kg 750 g

$$25 \text{ kg } 500 \text{ g} = 24 \text{ kg } 1500 \text{ g}$$

$$24 \text{ kg } 1500 \text{ g} - 12 \text{ kg } 750 \text{ g}$$

$$= \mathbf{12 \text{ kg } 750 \text{ g}}$$

---

(e)

Total rice = 6 kg 300 g

$$= 6300 \text{ g}$$

$$6300 \div 3$$

$$= 2100 \text{ g}$$

$$= \mathbf{2 \text{ kg } 100 \text{ g in each bag}}$$

---

### Practice Time 8.3

#### 1. Convert into millilitres

(a)

$$3 \text{ L} = 3 \times 1000$$

$$= \mathbf{3000 \text{ mL}}$$

---

**(b)**

6 L 250 mL

= 6000 + 250

= **6250 mL**

---

**(c)**

$\frac{1}{2}$  L

= 500 mL

Answer = **500 mL**

---

## **2. Convert into litres and millilitres**

**(a)**

7500 mL

= **7 L 500 mL**

---

**(b)**

9200 mL

= **9 L 200 mL**

---

**(c)**

11000 mL

= **11 L 0 mL**

---

## **3. Add**

**(a)**

2 L 150 mL + 3 L 250 mL

$$= 5 \text{ L } 400 \text{ mL}$$

---

**(b)**

$$4 \text{ L } 700 \text{ mL} + 1 \text{ L } 550 \text{ mL}$$

$$= 5 \text{ L } 1250 \text{ mL}$$

$$= 6 \text{ L } 250 \text{ mL}$$

---

**(c)**

$$6 \text{ L } 800 \text{ mL} + 2 \text{ L } 125 \text{ mL}$$

$$= 8 \text{ L } 925 \text{ mL}$$

---

#### **4. Subtract**

**(a)**

$$9 \text{ L } 500 \text{ mL} - 3 \text{ L } 200 \text{ mL}$$

$$= 6 \text{ L } 300 \text{ mL}$$

---

**(b)**

$$5 \text{ L } 250 \text{ mL} - 2 \text{ L } 450 \text{ mL}$$

Borrow:

$$5 \text{ L } 250 \text{ mL} = 4 \text{ L } 1250 \text{ mL}$$

$$1250 - 450 = 800 \text{ mL}$$

$$4 - 2 = 2 \text{ L}$$

$$\text{Answer} = 2 \text{ L } 800 \text{ mL}$$

---

**(c)**

$$8 \text{ L} - 4 \text{ L } 350 \text{ mL}$$

$$8 \text{ L} = 7 \text{ L } 1000 \text{ mL}$$

$$1000 - 350 = 650 \text{ mL}$$

$$7 - 4 = 3 \text{ L}$$

Answer = **3 L 650 mL**

---

## 5. Word Problems

(a)

$$1 \text{ L } 250 \text{ mL} \times 6$$

$$1250 \times 6$$

$$= 7500 \text{ mL}$$

$$= \mathbf{7 \text{ L } 500 \text{ mL}}$$

---

(b)

Tank capacity = 20 L

Half-filled

$$20 \div 2$$

$$= \mathbf{10 \text{ L}}$$

Answer = **10 litres of water.**

## NCERT CORNER

**Q1. Read the scales. Write the correct weight.**

Part Weight

(a) 1 kg 500 g

(b) 1 kg 750 g

(c) 2 kg 500 g

(d) 2 kg 500 g

(e) 250 g

(f) 750 g

---

**Q2. A restaurant owner uses 5 kg 200 g, 8 kg 900 g, and 12 kg 600 g of onions over 3 days. What is the total weight of onions used?**

**Solution**

**Step 1: Add grams**

$$200 \text{ g} + 900 \text{ g} + 600 \text{ g}$$

$$= 1700 \text{ g}$$

$$= 1 \text{ kg } 700 \text{ g}$$

**Step 2: Add kilograms**

$$5 \text{ kg} + 8 \text{ kg} + 12 \text{ kg}$$

$$= 25 \text{ kg}$$

Add the extra 1 kg:

$$25 \text{ kg} + 1 \text{ kg} = 26 \text{ kg}$$

**Answer**

**26 kg 700 g**

---

**Q3. Aarav is helping his grandfather at the fruit stall. He lifts two baskets of apples weighing 6 kg 100 g and 3 kg 950 g. What is the total weight of apples he lifted?**

**Solution**

**Step 1: Add grams**

$$100 \text{ g} + 950 \text{ g}$$

$$= 1050 \text{ g}$$

$$= 1 \text{ kg } 50 \text{ g}$$

**Step 2: Add kilograms**

$$6 \text{ kg} + 3 \text{ kg}$$

$$= 9 \text{ kg}$$

Add the extra 1 kg:

$$9 \text{ kg} + 1 \text{ kg}$$

$$= 10 \text{ kg}$$

**Answer**

**10 kg 50 g**

---

**Q4. 4 kg 500 g of sand is used from a sack weighing 10 kg. How much sand is left in the sack?**

**Solution**

**Step 1: Write in column form**

$$\begin{array}{r} 10 \text{ kg } 0 \text{ g} \\ - 4 \text{ kg } 500 \text{ g} \end{array}$$

Since  $0 \text{ g} < 500 \text{ g}$ , borrow 1 kg.

$$\begin{array}{r} 9 \text{ kg } 1000 \text{ g} \\ - 4 \text{ kg } 500 \text{ g} \end{array}$$

**Step 2: Subtract grams**

$$1000 \text{ g} - 500 \text{ g} = 500 \text{ g}$$

**Step 3: Subtract kilograms**

$$9 \text{ kg} - 4 \text{ kg} = 5 \text{ kg}$$

**Answer**

**5 kg 500 g**

**Q5. A rice sack weighs 9 kg 750 g. After some rice is used, it weighs 3 kg 700 g. How much rice was used?**

**Solution**

$$\begin{array}{r} 9 \text{ kg } 750 \text{ g} \\ - 3 \text{ kg } 700 \text{ g} \\ \hline 6 \text{ kg } 050 \text{ g} \end{array}$$

**Answer: 6 kg 50 g**

---

**Q6. A delivery truck delivered 17 kg 900 g in the morning and 12 kg 700 g in the afternoon. How much total supplies did it deliver?**

**Solution**

$$\begin{array}{r} 17 \text{ kg } 900 \text{ g} \\ + 12 \text{ kg } 700 \text{ g} \\ \hline \end{array}$$

$$29 \text{ kg } 1600 \text{ g}$$

$$1600 \text{ g} = 1 \text{ kg } 600 \text{ g}$$

$$\begin{array}{r} 29 \text{ kg} + 1 \text{ kg } 600 \text{ g} \\ = 30 \text{ kg } 600 \text{ g} \end{array}$$

**Answer: 30 kg 600 g**

---

**Q7. A box of books weighs 14 kg 750 g. After removing some books, it weighs 10 kg 500 g. What is the weight of books removed?**

**Solution**

$$\begin{array}{r} 14 \text{ kg } 750 \text{ g} \\ - 10 \text{ kg } 500 \text{ g} \\ \hline \end{array}$$

$$4 \text{ kg } 250 \text{ g}$$

**Answer: 4 kg 250 g**

---

**Q8. Community kitchen flour problem**

Flour purchased = **65 kg**

Flour used = **42 kg 275 g**

**(a) Flour left**

$$\begin{array}{r} 65 \text{ kg } 000 \text{ g} \\ - 42 \text{ kg } 275 \text{ g} \end{array}$$

Borrow:

$$\begin{array}{r} 64 \text{ kg } 1000 \text{ g} \\ - 42 \text{ kg } 275 \text{ g} \end{array}$$

-----  
22 kg 725 g

**Answer: 22 kg 725 g**

**(b) Additional flour bought = 52 kg 500 g**

22 kg 725 g  
+ 52 kg 500 g

-----  
74 kg 1225 g

1225 g = 1 kg 225 g

74 kg 1225 g  
= 75 kg 225 g

**Answer: 75 kg 225 g**

---

### Q9. Grocery Cost Table

Item	Weight	Cost of 1 kg	Total Cost
Rice	12 kg 500 g = 12.5 kg	₹60	₹750
Flour	7 kg 250 g = 7.25 kg	₹40	₹290
Sugar	5 kg	₹45	₹225
Chana Dal	3 kg 600 g = 3.6 kg	₹70	₹252
Besan	4 kg	₹60	₹240
Jaggery	1 kg 400 g = 1.4 kg	₹50	₹70

---

**Q10. 4 people need 500 g rice. How much rice for 8 people?**

8 people are double of 4 people.

$500 \text{ g} \times 2 = 1000 \text{ g}$

**Answer: 1000 g (1 kg)**

---

**Q11. 5 kg tomatoes cost ₹73. How much will 10 kg cost?**

10 kg is double of 5 kg.

$$₹73 \times 2 = ₹146$$

**Answer: ₹146**

---

### **Q12. Scrap Dealer**

**(a) 16 kg newspaper at ₹8 per kg**

$$16 \times 8 = ₹128$$

**Answer: ₹128**

---

**(b) 20 kg iron at ₹200 per 10 kg**

$$20 \text{ kg} = 2 \times 10 \text{ kg}$$

$$₹200 \times 2 = ₹400$$

**Answer: ₹400**

---

**(c) 10 kg plastic at ₹30 per 5 kg**

$$10 \text{ kg} = 2 \times 5 \text{ kg}$$

$$₹30 \times 2 = ₹60$$

**Answer: ₹60**

### **Let Us Think**

**Q.1 Mary and Daisy filled their bottle with 1 L 400 mL of water. They wondered about the capacity of the bottle in mL. How much is it?**

#### **Given**

Water in the bottle = 1 L 400 mL

#### **Conversion**

We know that:

$$1 \text{ L} = 1000 \text{ mL}$$

So,

$$1 \text{ L } 400 \text{ mL} = 1000 \text{ mL} + 400 \text{ mL}$$

$$= 1400 \text{ mL}$$

**Answer**

**The capacity of the bottle is 1400 mL.**

**Caption:** *Daisy is correct because 1 litre equals 1000 millilitres, so 1 L 400 mL = 1400 mL.*

---

**Q.2 Convert and fill in the blanks**

**(a) 3 L 8 mL = \_\_\_\_\_ mL**

**Solution**

$$1 \text{ L} = 1000 \text{ mL}$$

$$3 \text{ L} = 3 \times 1000 = 3000 \text{ mL}$$

$$3000 \text{ mL} + 8 \text{ mL} = \mathbf{3008 \text{ mL}}$$

**Answer: 3008 mL**

---

**(b) 9 L 90 mL = \_\_\_\_\_ mL**

**Solution**

$$9 \text{ L} = 9 \times 1000 = 9000 \text{ mL}$$

$$9000 \text{ mL} + 90 \text{ mL} = \mathbf{9090 \text{ mL}}$$

**Answer: 9090 mL**

---

**(c) 14,075 mL = \_\_\_\_\_ L \_\_\_\_\_ mL**

**Solution**

$$1000 \text{ mL} = 1 \text{ L}$$

$$14,075 \text{ mL} = 14 \text{ L and } 75 \text{ mL}$$

**Answer: 14 L 75 mL**

---

**(d) 8 L 86 mL = \_\_\_\_\_ mL**

**Solution**

$$8 \text{ L} = 8000 \text{ mL}$$

$$8000 \text{ mL} + 86 \text{ mL} = \mathbf{8086 \text{ mL}}$$

**Answer: 8086 mL**

---

(e)  $12,200 \text{ mL} = \underline{\quad\quad} \text{ L } \underline{\quad\quad} \text{ mL}$

**Solution**

$$12,200 \text{ mL} = 12 \text{ L and } 200 \text{ mL}$$

**Answer: 12 L 200 mL**

---

(f)  $18,350 \text{ mL} = \underline{\quad\quad} \text{ L } \underline{\quad\quad} \text{ mL}$

**Solution**

$$18,350 \text{ mL} = 18 \text{ L and } 350 \text{ mL}$$

**Answer: 18 L 350 mL**

---

**Let Us Find**

**Q1. If a sugar sachet weighs 5 g, how much will it be in milligrams?**

**Solution**

$$1 \text{ g} = 1000 \text{ mg}$$

$$5 \text{ g} = 5 \times 1000$$

$$= 5000 \text{ mg}$$

**Answer: 5000 mg**

---

**Q2. Complete the double number line**

$$1 \text{ g} = 1000 \text{ mg}$$

$$5 \text{ g} = 5000 \text{ mg}$$

$$12 \text{ g} = 12000 \text{ mg}$$

$$20,000 \text{ mg} = 20 \text{ g}$$

$$25 \text{ g} = 25,000 \text{ mg}$$

$$31,000 \text{ mg} = 31 \text{ g}$$

**Answers for blanks:**

- 5000 mg
  - 20 g
  - 25,000 mg
  - 31 g
- 

**Q3. An ornament weighs 4 g 100 mg. What will be the weight in milligrams?**

**Solution**

$$4 \text{ g} = 4000 \text{ mg}$$

$$4000 \text{ mg} + 100 \text{ mg}$$

$$= 4100 \text{ mg}$$

**Answer: 4100 mg**

---

**Q4. A goldsmith has made an ornament weighing 10 g 500 mg. What will its weight be in milligrams?**

**Solution**

$$10 \text{ g} = 10,000 \text{ mg}$$

$$10,000 \text{ mg} + 500 \text{ mg}$$

$$= 10,500 \text{ mg}$$

**Answer: 10,500 mg**

---

**Q5. Compare using <, > or =**

**(a) 20 g \_\_\_ 200 mg**

$$20 \text{ g} = 20,000 \text{ mg}$$

$$20,000 \text{ mg} > 200 \text{ mg}$$

**Answer: >**

---

**(b) 16 g 50 mg \_\_\_ 50 g 16 mg**

$$16 \text{ g } 50 \text{ mg} = 16,050 \text{ mg}$$

$$50 \text{ g } 16 \text{ mg} = 50,016 \text{ mg}$$

**Answer: <**

---

**(c) 2010 mg \_\_\_ 2 g 100 mg**

$$2 \text{ g } 100 \text{ mg} = 2100 \text{ mg}$$

$$2010 \text{ mg} < 2100 \text{ mg}$$

**Answer: <**

---

**(d) 9000 mg \_\_\_ 90 g**

$$90 \text{ g} = 90,000 \text{ mg}$$

$$9000 \text{ mg} < 90,000 \text{ mg}$$

**Answer: <**

---

**(e) 5000 g \_\_\_ 7500 g**

**Answer: <**

---

**(f) 800 mg + 88 mg \_\_\_ 880 mg + 8 mg**

$$\text{Left side} = 888 \text{ mg}$$

$$\text{Right side} = 888 \text{ mg}$$

**Answer: =**

---

**Q6. Observe the picture and fill in the blank**

$$\text{Elephant} = 5000 \text{ kg}$$

$$\text{Whale} = 40 \times \text{elephant}$$

$$= 5000 \times 40$$

$$= 200,000 \text{ kg}$$

**Answer: 200,000 kg**

---

**Q7. Answer the following**

**(a) 5000 kg = \_\_\_ quintals = \_\_\_ tonne**

$$100 \text{ kg} = 1 \text{ quintal}$$

$$5000 \div 100 = 50 \text{ quintals}$$

$$1000 \text{ kg} = 1 \text{ tonne}$$

$$5000 \div 1000 = 5 \text{ tonnes}$$

**Answer: 50 quintals = 5 tonnes**

---

**(b) 9000 kg = \_\_\_ quintals**

$$9000 \div 100 = 90$$

**Answer: 90 quintals**

---

**(c) \_\_\_ kg = 8 tonnes**

$$1 \text{ tonne} = 1000 \text{ kg}$$

$$8 \times 1000 = 8000 \text{ kg}$$

**Answer: 8000 kg**

**Let Us Solve**

**1. Riya is filling water bottles for a picnic.**

**Given**

Riya fills:

- One 2 L bottle = 2000 mL
- Four 500 mL bottles =  $4 \times 500 = 2000$  mL

Total water filled by Riya  
= 2000 mL + 2000 mL  
= **4000 mL**

Aarav fills:

- Three 750 mL bottles  
=  $3 \times 750$   
= **2250 mL**

### **Comparison**

4000 mL – 2250 mL = **1750 mL**

### **Answer**

**Riya filled more water. She filled 1750 mL (1 L 750 mL) more than Aarav.**

---

**2. A bottle of milk is poured equally into 8 glasses, leaving 120 mL in the bottle.**

**(a) Total capacity of 8 glasses**

Capacity of 1 glass = 360 mL

Capacity of 8 glasses  
=  $8 \times 360$   
= **2880 mL**

### **Answer**

**2880 mL (2 L 880 mL)**

---

**(b) Milk in the bottle initially**

Milk poured into glasses = 2880 mL

Milk left in bottle = 120 mL

Initial milk  
= 2880 + 120  
= **3000 mL**

### **Answer**

**3000 mL = 3 L**

---

**(c) Cost of 3 L milk**

Cost of 1 L milk = ₹40

Cost of 3 L milk

$$= 3 \times 40$$

$$= \mathbf{₹120}$$

**Answer**

**₹120**

---

**3. A juice vendor has a 5 L container of orange juice.**

**Given**

$$5 \text{ L} = 5000 \text{ mL}$$

Capacity of one glass = 250 mL

**(a) Number of full glasses**

$$5000 \div 250 = \mathbf{20}$$

**Answer**

**20 glasses**

---

**(b) Juice left after serving 10 glasses**

Juice served

$$= 10 \times 250$$

$$= 2500 \text{ mL}$$

Juice left

$$= 5000 - 2500$$

$$= \mathbf{2500 \text{ mL}}$$

**Answer**

$$\mathbf{2500 \text{ mL} = 2 \text{ L } 500 \text{ mL}}$$

---

**(c) Money earned by selling 5 L juice**

250 mL costs ₹25

5 L = 5000 mL

Number of 250 mL glasses

$$= 5000 \div 250$$

$$= 20$$

Total earning

$$= 20 \times ₹25$$

$$= ₹500$$

**Answer**

**₹500**

---

**4. In a factory, 8 L 400 mL of oil is equally poured into 7 containers.**

**Given**

$$8 \text{ L } 400 \text{ mL} = 8400 \text{ mL}$$

Oil in each container

$$= 8400 \div 7$$

$$= \mathbf{1200 \text{ mL}}$$

$$1200 \text{ mL} = 1 \text{ L } 200 \text{ mL}$$

**Answer**

**Each container will hold 1 L 200 mL of oil.**

---

**5. One container can hold 1 L 75 mL of buttermilk.**

**Given**

$$1 \text{ L } 75 \text{ mL} = 1075 \text{ mL}$$

For 8 containers:

$$1075 \times 8 = 8600 \text{ mL}$$

$$8600 \text{ mL} = 8 \text{ L } 600 \text{ mL}$$

**Answer**

**8 containers can hold 8 L 600 mL of buttermilk.**

## Exam Time

### A. Multiple Choice Questions

1. The basic unit of weight is

**Answer: (a) Kilogram**

---

2. 1 kilogram is equal to

**Answer: (b) 1000 g**

---

3. Which balance gives digital readings?

**Answer: (c) Electronic Balance**

---

4. 1 litre = \_\_\_ millilitres

**Answer: (c) 1000**

---

5. 1 tonne = \_\_\_ quintals

**Answer: (a) 10**

---

### B. Fill in the Blanks

1. The measure of how heavy an object is called its **weight**.

2. 1 g = **1000** milligrams.

3. 1 quintal = **100** kilograms.

**4. The standard unit of capacity is the litre (L).**

Answer: litre (L)

---

**5. 3 kg 800 g + 200 g = \_\_\_\_\_ kg**

**Solution:**

$$\begin{aligned} & 3 \text{ kg } 800 \text{ g} + 200 \text{ g} \\ &= 3 \text{ kg} + (800 \text{ g} + 200 \text{ g}) \\ &= 3 \text{ kg} + 1000 \text{ g} \\ &\text{Since } 1000 \text{ g} = 1 \text{ kg}, \\ &= 3 \text{ kg} + 1 \text{ kg} \\ &= 4 \text{ kg} \end{aligned}$$

**Write True or False**

**1. 1 kilogram = 100 grams.**

**False**

Because 1 kilogram = 1000 grams.

---

**2. A spring balance works by stretching a spring.**

**True**

---

**3. 1000 mL = 1 litre.**

**True**

---

**4. A tonne is smaller than a kilogram.**

**False**

Because 1 tonne = 1000 kg.

---

**5. We use litres and millilitres to measure capacity.**

**True**

---

**Match the Following**

Column I	Column II
1. 1 kg	1000 g (c)
2. 2000 g	2 kg (e)
3. 1 L	1000 mL (d)
4. $\frac{1}{2}$ kg	500 g (b)
5. 3 L 250 mL	3250 mL (a)

**Answers:**

1 → (c)

2 → (e)

3 → (d)

4 → (b)

5 → (a)

**Very Short Answer Type Questions**

**1. Circle the heavier object: 3 kg 250 g or 2 kg 900 g**

$$3 \text{ kg } 250 \text{ g} = 3250 \text{ g}$$

$$2 \text{ kg } 900 \text{ g} = 2900 \text{ g}$$

$$3250 \text{ g} > 2900 \text{ g}$$

**Answer: 3 kg 250 g**

**2. Subtract: 7 kg 600 g – 2 kg 800 g**

Borrow 1 kg = 1000 g

$$\begin{array}{r} 6 \text{ kg } 1600 \text{ g} \\ - 2 \text{ kg } 800 \text{ g} \\ \hline \end{array}$$

$$\begin{array}{r} \text{-----} \\ 4 \text{ kg } 800 \text{ g} \end{array}$$

**Answer: 4 kg 800 g**

**3. Multiply: 250 g × 4**

$$250 \times 4 = 1000 \text{ g}$$

**Answer: 1000 g (1 kg)**

---

**4. Divide: 8 kg 400 g  $\div$  4**

Convert into grams:

$$8 \text{ kg } 400 \text{ g} = 8400 \text{ g}$$

$$8400 \div 4 = 2100 \text{ g}$$

$$2100 \text{ g} = 2 \text{ kg } 100 \text{ g}$$

**Answer: 2 kg 100 g**

---

**5. Convert 5 L 250 mL into millilitres**

$$5 \text{ L} = 5000 \text{ mL}$$

$$5000 + 250$$

$$= 5250 \text{ mL}$$

**Answer: 5250 mL**

---

**6. 2500 mL = \_\_\_ L \_\_\_ mL**

$$2500 \text{ mL} = 2000 \text{ mL} + 500 \text{ mL}$$

$$= 2 \text{ L } 500 \text{ mL}$$

**Answer: 2 L 500 mL**

---

**7. Add: 3 L 150 mL + 2 L 650 mL**

$$\begin{array}{r} 3 \text{ L } 150 \text{ mL} \\ + 2 \text{ L } 650 \text{ mL} \\ \hline \end{array}$$

$$5 \text{ L } 800 \text{ mL}$$

**Answer: 5 L 800 mL**

---

**8. Circle the larger capacity:  $\frac{1}{2}$  L or 250 mL**

$$\frac{1}{2} \text{ L} = 500 \text{ mL}$$

$$500 \text{ mL} > 250 \text{ mL}$$

**Answer:  $\frac{1}{2}$  L**

---

### **Short Answer Type Questions**

**1(a) Convert 2500 g into kg**

$$1000 \text{ g} = 1 \text{ kg}$$

$$2500 \text{ g} = 2 \text{ kg } 500 \text{ g}$$

**Answer: 2 kg 500 g**

---

**1(b) Convert 6 kg into g**

$$6 \times 1000 = 6000 \text{ g}$$

**Answer: 6000 g**

---

**1(c) Convert 3 kg 250 g into g**

$$3 \text{ kg} = 3000 \text{ g}$$

$$3000 \text{ g} + 250 \text{ g} = 3250 \text{ g}$$

**Answer: 3250 g**

---

**2(a) Find the total weight**

$$2 \text{ kg } 350 \text{ g} + 4 \text{ kg } 650 \text{ g}$$

$$\begin{array}{r} 2 \text{ kg } 350 \text{ g} \\ + 4 \text{ kg } 650 \text{ g} \\ \hline \end{array}$$

$$\begin{array}{r} \text{-----} \\ 6 \text{ kg } 1000 \text{ g} \\ = 7 \text{ kg} \end{array}$$

**Answer: 7 kg**

---

**2(b) Find the total weight**

$$1 \text{ kg } 500 \text{ g} + 500 \text{ g}$$

$$\begin{array}{r} 1 \text{ kg } 500 \text{ g} \\ + \quad 500 \text{ g} \\ \hline \end{array}$$

$$2 \text{ kg } 000 \text{ g}$$

**Answer: 2 kg**

---

**3(a) Subtract 5 kg 750 g from 9 kg 200 g**

$$\begin{array}{r} 9 \text{ kg } 200 \text{ g} \\ - 5 \text{ kg } 750 \text{ g} \\ \hline \end{array}$$

Borrow:

$$\begin{array}{r} 8 \text{ kg } 1200 \text{ g} \\ - 5 \text{ kg } 750 \text{ g} \\ \hline \end{array}$$

$$3 \text{ kg } 450 \text{ g}$$

**Answer: 3 kg 450 g**

---

**3(b) Subtract 3 kg 600 g from 8 kg**

$$\begin{array}{r} 8 \text{ kg } 000 \text{ g} \\ - 3 \text{ kg } 600 \text{ g} \\ \hline \end{array}$$

Borrow:

$$\begin{array}{r} 7 \text{ kg } 1000 \text{ g} \\ - 3 \text{ kg } 600 \text{ g} \\ \hline \end{array}$$

$$4 \text{ kg } 400 \text{ g}$$

**Answer: 4 kg 400 g**

---

**4(a) Multiply 2 kg 500 g  $\times$  4**

Convert to grams:

$$2 \text{ kg } 500 \text{ g} = 2500 \text{ g}$$

$$2500 \times 4 = 10000 \text{ g}$$

$$10000 \text{ g} = 10 \text{ kg}$$

**Answer: 10 kg**

---

**4(b) Multiply 1 kg 250 g  $\times$  2**

$$1 \text{ kg } 250 \text{ g} = 1250 \text{ g}$$

$$1250 \times 2 = 2500 \text{ g}$$

$$2500 \text{ g} = 2 \text{ kg } 500 \text{ g}$$

**Answer: 2 kg 500 g**

---

**5(a) Divide 12 kg  $\div$  4**

$$12 \div 4 = 3$$

**Answer: 3 kg**

---

**5(b) Divide 8 kg  $\div$  2**

$$8 \div 2 = 4$$

**Answer: 4 kg**

---

**5(c) Divide 15 kg  $\div$  3**

$$15 \div 3 = 5$$

**Answer: 5 kg**

---

**6(a) Convert into larger units**

$$8000 \text{ g} = 8 \text{ kg}$$

**Answer: 8 kg**

---

**6(b) Convert into larger units**

$$15000 \text{ g} = 15 \text{ kg}$$

**Answer: 15 kg**

---

**6(c) Convert into larger units**

$$25000 \text{ g} = 25 \text{ kg}$$

**Answer: 25 kg**

---

**7(a) Convert into smaller units**

$$5 \text{ kg} = 5000 \text{ g}$$

**Answer: 5000 g**

---

**7(b) Convert into smaller units**

$$2 \text{ kg} = 2000 \text{ g}$$

**Answer: 2000 g**

---

**7(c) Convert into smaller units**

$$10 \text{ kg} = 10000 \text{ g}$$

**Answer: 10000 g**

---

**Long Answer Type Questions**

---

**Q1. Riya bought 3 kg 250 g of apples and 2 kg 750 g of oranges. Find the total weight of fruits she bought.**

**Solution**

$$\begin{array}{r} 3 \text{ kg } 250 \text{ g} \\ + 2 \text{ kg } 750 \text{ g} \\ \hline 5 \text{ kg } 1000 \text{ g} \end{array}$$

Since  $1000 \text{ g} = 1 \text{ kg}$

$5 \text{ kg } 1000 \text{ g}$   
 $= 6 \text{ kg}$

**Answer:**

**6 kg**

---

**Q2. A sack of rice weighs 25 kg. If 5 such sacks are bought, find the total weight in quintals.**

**Solution**

Weight of 1 sack = 25 kg

Number of sacks = 5

$25 \times 5 = 125 \text{ kg}$

Now convert into quintals.

$100 \text{ kg} = 1 \text{ quintal}$

$125 \text{ kg} = 1 \text{ quintal } 25 \text{ kg}$

**Answer:**

**1 quintal 25 kg**

---

**Q3. Convert the following into higher or lower units**

**(a) 8 kg into g**

$1 \text{ kg} = 1000 \text{ g}$

$8 \times 1000 = 8000 \text{ g}$

**Answer:**

**8000 g**

---

**(b) 12500 g into kg**

$12500 \text{ g} = 12 \text{ kg } 500 \text{ g}$

**Answer:**

**12 kg 500 g**

---

**(c) 3 L 250 mL into mL**

$$3 \text{ L} = 3000 \text{ mL}$$

$$3000 + 250 = 3250 \text{ mL}$$

**Answer:**

**3250 mL**

---

**(d) 6000 mL into L**

$$1000 \text{ mL} = 1 \text{ L}$$

$$6000 \div 1000 = 6$$

**Answer:**

**6 L**

---

**Q4. A milkman sells 8 L 500 mL of milk in the morning and 12 L 500 mL in the evening. Find the total milk sold in one day.**

**Solution**

$$\begin{array}{r} 8 \text{ L } 500 \text{ mL} \\ + 12 \text{ L } 500 \text{ mL} \\ \hline 20 \text{ L } 1000 \text{ mL} \end{array}$$

$$1000 \text{ mL} = 1 \text{ L}$$

$$\begin{array}{l} 20 \text{ L } 1000 \text{ mL} \\ = 21 \text{ L} \end{array}$$

**Answer:**

**21 L**

---

**Q5. A truck carries 3 tonnes of goods daily. How much weight will it carry in 7 days?**

## **Solution**

Weight carried daily = 3 tonnes

Days = 7

$$3 \times 7 = 21 \text{ tonnes}$$

**Answer:**

**21 tonnes**

---

## **Competency-Based Questions**

### **A. Assertion–Reason Questions**

**1.**

**Assertion (A):**

When subtracting 4 kg 500 g from 10 kg, we must borrow 1 kg and convert it to 1000 g.

**Reason (R):**

Borrowing helps in performing subtraction when the grams in the minuend are smaller than in the subtrahend.

**Answer:**

**(a) Both (A) and (R) are true and (R) is the correct explanation of (A).**

---

**2.**

**Assertion (A):**

We can directly add 3 kg 750 g and 4 kg 250 g without converting units.

**Reason (R):**

Kilograms and grams are independent units and cannot be combined.

**Answer:**

- Assertion is True.
- Reason is False.

**Correct Option: (c)**

---

3.

**Assertion (A):**

While adding 6 kg 750 g and 4 kg 300 g, the answer is 10 kg 1050 g.

**Reason (R):**

The sum of grams above 1000 should be regrouped as 1 kg 50 g, making the final answer 11 kg 50 g.

**Check:**

6 kg 750 g  
+4 kg 300 g

-----

10 kg 1050 g

1050 g = 1 kg 50 g

10 kg + 1 kg 50 g  
= 11 kg 50 g

**Answer:**

**(b) Both (A) and (R) are true but (R) is not the correct explanation of (A).**

---

## **B. Case Study Questions**

**Given:**

Flour bought = 65 kg

Flour used = 42 kg 275 g

Additional flour purchased = 52 kg 500 g

---

**Q1. How much flour was left after preparing the langar?**

**Solution**

65 kg 000 g  
- 42 kg 275 g

Borrow 1 kg

64 kg 1000 g  
- 42 kg 275 g

$$\begin{array}{r} \text{-----} \\ 22 \text{ kg } 725 \text{ g} \end{array}$$

**Answer:**

**22 kg 725 g**

---

**Q2. What is the total quantity of flour now available in the kitchen store?**

**Solution**

$$\begin{array}{r} 22 \text{ kg } 725 \text{ g} \\ + 52 \text{ kg } 500 \text{ g} \\ \text{-----} \end{array}$$

$$74 \text{ kg } 1225 \text{ g}$$

$$1225 \text{ g} = 1 \text{ kg } 225 \text{ g}$$

$$\begin{array}{r} 74 \text{ kg } 1225 \text{ g} \\ = 75 \text{ kg } 225 \text{ g} \end{array}$$

**Answer:**

**75 kg 225 g**

---

**Q3. Why is accurate weight measurement important in large community kitchens?**

**Answer:**

Accurate weight measurement helps to:

- Prepare the correct quantity of food.
- Avoid wastage of ingredients.
- Manage supplies properly.
- Ensure food is sufficient for everyone.

**Maths Booster**

**Across**

5. Sixteen of these equals one pound → OUNCES

7. A metric unit of capacity. One thousand millilitres equals one of these → LITRE

8. A metric unit of measuring mass, close to the mass of a paperclip → GRAM
  9. Two of these equals one pint → CUPS
  10. The standard unit of measure in most of the world. It uses a base ten system → METRIC
  12. How we measure in the United States → CUSTOMARY
- 

### Down

1. A metric unit of mass, about the mass of a pair of shoes → KILOGRAM
2. Amount of space a liquid occupies → VOLUME
3. The amount of liquid a container can hold → CAPACITY
4. A measurement that indicates how heavy an object is → WEIGHT
6. Two of these equals one quart → PINTS
11. Four of these equals one gallon → QUARTS

## Ch-9: Coconut farm

### Practice Time 9.1

**Q1. Solve the following division**

Division	Quotient	Remainder
$8787 \div 12$	732	3
$66565 \div 56$	1188	37
$98645 \div 11$	8967	8
$23900 \div 19$	1257	17
$345650 \div 24$	14402	2
$234987 \div 22$	10681	5

Division	Quotient	Remainder
$625656 \div 56$	11172	24

---

**Q2. Amit purchased a packet of 65 candies. Find how many packets are required to pack 2608 candies.**

**Given**

- Number of candies in one packet = 65
- Total candies = 2608

**To Find**

**Number of packets required to pack 2608 candies.**

**Solution**

**We divide the total number of candies by the number of candies in one packet.**

$$2608 \div 65$$

$$\begin{array}{r}
 40 \\
 \hline
 65 \overline{) 2608} \\
 \underline{260} \\
 \text{---} \\
 08
 \end{array}$$

- 65 goes into 260 4 times ( $65 \times 4 = 260$ ).
- Bring down 8.
- 65 does not go into 8.

**Practice Time 9.2**

**1(a)  $12921 \div 13$**

Estimated quotient:

$$13000 \div 13 \approx 1000$$

**Answer:**

**1000**

---

**1(b) 4533 ÷ 41**

$$4500 \div 40 = 112$$

**Answer:**

**112**

---

**1(c) 234 ÷ 56**

$$200 \div 50 = 4$$

**Answer:**

**4**

---

**1(d) 789563 ÷ 23**

$$790000 \div 20 = 39500$$

**Answer:**

**39500**

---

**1(e) 4789 ÷ 22**

$$4800 \div 20 = 240$$

**Answer:**

**240**

---

**1(f) 668792 ÷ 28**

$$670000 \div 30 \approx 22333$$

**Answer:**

**22333**

---

**1(g)  $98982 \div 56$**

$99000 \div 60 = 1650$

**Answer:**

**1650**

---

**1(h)  $5738 \div 21$**

$5700 \div 20 = 285$

**Answer:**

**285**

---

**Q2. 82 trucks can carry 421644 kg. Find the weight carried by one truck.**

**Given**

- Total weight = 421644 kg
- Number of trucks = 82

**To Find**

**Weight carried by one truck.**

**Solution**

We divide the total weight by the number of trucks.

$$421644 \div 82$$

5142

$$\begin{array}{r} 82 \overline{) 421644} \\ \underline{410} \phantom{00} \\ 116 \phantom{00} \\ \underline{82} \phantom{00} \\ 344 \phantom{00} \\ \underline{328} \phantom{00} \\ \phantom{00} 16 \phantom{00} \\ \underline{\phantom{00} 16} \phantom{00} \\ \phantom{000} 0 \phantom{00} \end{array}$$

$$\begin{array}{r}
 164 \\
 164 \\
 \text{---} \\
 0
 \end{array}$$

Explanation

- 82 goes into 421 5 times
  - $82 \times 5 = 410$
  - Remainder =  $421 - 410 = 11$
- Bring down 6  $\rightarrow$  116
  - 82 goes into 116 1 time
  - $82 \times 1 = 82$
  - Remainder = 34
- Bring down 4  $\rightarrow$  344
  - 82 goes into 344 4 times
  - $82 \times 4 = 328$
  - Remainder = 16
- Bring down 4  $\rightarrow$  164
  - 82 goes into 164 2 times
  - $82 \times 2 = 164$
  - Remainder = 0

**Q3. 421 machines produce 195765 clips. Find the number of clips produced by one machine.**

**Given**

- Total clips produced = 195765
- Number of machines = 421

**To Find**

**Number of clips produced by one machine.**

**Solution**

We divide the total number of clips by the number of machines.

$$195765 \div 421$$

$$\begin{array}{r} 465 \\ 421 \overline{) 195765} \\ \underline{1684} \phantom{0} \\ 2736 \\ \underline{2526} \phantom{0} \\ 2105 \\ \underline{2105} \\ 0 \end{array}$$

Explanation

- 421 goes into 1957 4 times
  - $421 \times 4 = 1684$
  - Remainder =  $1957 - 1684 = 273$
- Bring down 6  $\rightarrow 2736$ 
  - 421 goes into 2736 6 times
  - $421 \times 6 = 2526$
  - Remainder =  $2736 - 2526 = 210$
- Bring down 5  $\rightarrow 2105$ 
  - 421 goes into 2105 5 times
  - $421 \times 5 = 2105$
  - Remainder = 0

### Practice Time 9.3

Q1

$$240 \text{ lemons} \div 4$$

$$= 60$$

**Answer:**

**60 jugs**

---

**Q2**

$$273 \text{ cookies} \div 13$$

$$= 21$$

**Answer:**

**21 cookies in each pack**

---

**Q3**

$$\text{₹}6450 \div 150$$

$$= 43$$

**Answer:**

**43 people**

---

**Q4**

$$9975 \text{ kg} \div 95$$

$$= 105$$

**Answer:**

**105 kg wheat in each bag**

---

**Q5**

$$\text{Cost of 3 containers} = \text{₹}19855$$

Cost of 1 container

$$19855 \div 3$$

$$= \text{₹}6618 \text{ remainder } \text{₹}1$$

**Answer:**

**₹6618.33 (approximately)**

---

### **Practice Time 9.4**

#### **Q1**

(a)  $115 \div 1 = 115$

(b)  $456 \div 1 = 456$

(c)  $0 \div 237 = 0$

(d)  $4598 \div 4598 = 1$

(e)  $543 \div 543 = 1$

(f)  $0 \div 2500 = 0$

(g)  $5678 \div 1 = 5678$

(h)  $932 \div 932 = 1$

---

#### **Q2**

(a) If  $45 \times 6 = 270$ , then  $270 \div 6 = 45$

(b) If  $12 \times 9 = 108$ , then  $108 \div 9 = 12$

(c)  $0 \div 24 = 0$

(d)  $987 \div 1 = 987$

---

### **Practice Time 9.5**

#### **Q1 Average price of baskets**

Total cost = ₹240 + ₹241

= ₹481

Average =  $481 \div 2$

= ₹240.50

**Answer:**

**₹240.50**

---

**Q2 Average weight**

Total weight

$$= 43 + 41 + 42$$

$$= 126 \text{ kg}$$

Average

$$= 126 \div 3$$

$$= 42 \text{ kg}$$

**Answer:**

**42 kg**

---

**Q3 Average marks**

$$38 + 48 + 32 + 48$$

$$= 166$$

Average

$$= 166 \div 4$$

$$= 41.5$$

**Answer:**

**41.5 marks**

---

**Q4 Average runs**

$$98 + 25 + 105 + 62 + 65$$

$$= 355$$

Average

$$= 355 \div 5$$

$$= 71$$

**Answer:**

**71 runs**

---

**Q5 Average of first five multiples of 5**

Multiples: 5, 10, 15, 20, 25

Sum = 75

Average =  $75 \div 5$

= 15

**Answer:**

**15**

**6. John earns ₹100 on the first day, ₹60 on the second day, ₹150 on the third day, ₹80 on the fourth day and ₹90 on the fifth day of the week. Calculate the average earning of John in the five days.**

**Given**

<b>Day</b>	<b>Earning (₹)</b>
------------	--------------------

First Day	100
-----------	-----

Second Day	60
------------	----

Third Day	150
-----------	-----

Fourth Day	80
------------	----

Fifth Day	90
-----------	----

**Solution**

Total earning

$$= 100 + 60 + 150 + 80 + 90$$

$$= 480$$

Average earning

$$= \frac{\text{Total Earning}}{\text{Number of Days}}$$

$$\begin{aligned} &= \frac{480}{5} \\ &= 96 \end{aligned}$$

**Answer**

**The average earning of John in five days is ₹96.**

---

**7. Divide the following using division model**

**(a)  $438 \div 48$**

$$\begin{array}{r} 9 \\ \hline 48 \overline{) 438} \\ \underline{432} \\ 6 \end{array}$$

**Answer**

**Quotient = 9, Remainder = 6**

---

**(b)  $542 \div 15$**

$$\begin{array}{r} 36 \\ \hline 15 \overline{) 542} \\ \underline{45} \\ 92 \\ \underline{90} \\ 2 \end{array}$$

**Answer**

**Quotient = 36, Remainder = 2**

---

**(c)  $231 \div 20$**

$$\begin{array}{r}
 11 \\
 \hline
 20 \overline{) 231} \\
 \underline{220} \\
 11
 \end{array}$$

**Answer**

**Quotient = 11, Remainder = 11**

---

**(d)  $625 \div 85$**

$$\begin{array}{r}
 7 \\
 \hline
 85 \overline{) 625} \\
 \underline{595} \\
 30
 \end{array}$$

**Answer**

**Quotient = 7, Remainder = 30**

### **Practice Time 9.6**

**Simplify using DMAS**

(a)  $19 \times 2 + 5$

$= 38 + 5$

$= \mathbf{43}$

---

(b)  $12 \div 3 + 3$

$= 4 + 3$

$= \mathbf{7}$

---

(c)  $20 \div 4 - 2$

$= 5 - 2$

$$= 3$$

---

$$(d) 2 \times 13 - 18 + 2$$

$$= 26 - 18 + 2$$

$$= 10$$

---

$$(e) 37 - 5 + 28 \div 4 - 7$$

$$= 37 - 5 + 7 - 7$$

$$= 32$$

---

$$(f) 2 \times 18 \div 6 - 1$$

$$= 36 \div 6 - 1$$

$$= 6 - 1$$

$$= 5$$

---

$$(g) 3 + 5 - 6 \div 3 + 2 \times 14 \div 7 - 3$$

$$= 3 + 5 - 2 + 4 - 3$$

$$= 7$$

---

$$(h) 39 \times 23 + 29 - 17 - 9 \div 3$$

$$= 897 + 29 - 17 - 3$$

$$= 906$$

**Q2. Fill the following blanks**

$$(a) 8 \div 2 + 8 - 10$$

Using DMAS:

$$= 4 + 8 - 10$$

$$= 12 - 10$$

$$= 2$$

---

$$\text{(b) } 6 \times 5 - 4 + 2$$

$$= 30 - 4 + 2$$

$$= 26 + 2$$

$$= 28$$

---

$$\text{(c) } 20 \times 15 + 4 - 3 + 2 \div 1 + 3$$

$$= 300 + 4 - 3 + 2 + 3$$

$$= 304 - 3 + 2 + 3$$

$$= 301 + 2 + 3$$

$$= 303 + 3$$

$$= 306$$

---

$$\text{(d) } 27 - 3 + 46 - 15 \div 3 - 2$$

$$= 27 - 3 + 46 - 5 - 2$$

$$= 24 + 46 - 5 - 2$$

$$= 70 - 5 - 2$$

$$= 65 - 2$$

$$= 63$$

---

$$\text{(e) } 30 \times 2 - 14 + 15 - 4 \div 2 \times 2$$

$$= 60 - 14 + 15 - 2 \times 2$$

$$= 60 - 14 + 15 - 4$$

$$= 46 + 15 - 4$$

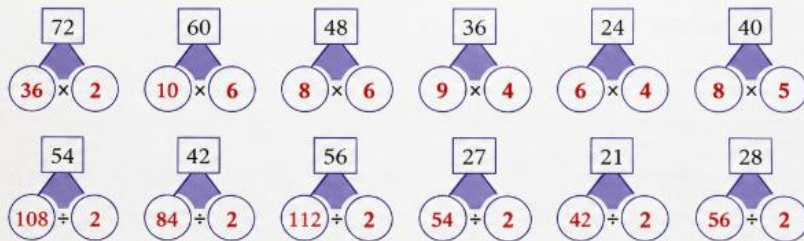
$$= 61 - 4$$

$$= 57$$

## NCERT Corner

### Let Us Play

Identify the numbers that can fill the circles such that the numbers in the squares are the products or the quotients of the numbers in the circles.



### Let Us Do

1. Solve the multiplication problems and write two division statements.

(a)  $30 \times 30 = 900$

$$900 \div 30 = 30$$

$$900 \div 30 = 30$$

---

(b)  $15 \times 60 = 900$

$$900 \div 15 = 60$$

$$900 \div 60 = 15$$

---

(c)  $400 \times 8 = 3200$

$$3200 \div 400 = 8$$

$$3200 \div 8 = 400$$

---

(d)  $200 \times 16 = 3200$

$$3200 \div 200 = 16$$

$$3200 \div 16 = 200$$

---

2. Solve the division problems

(a)  $150 \div 3 = 50$

(b)  $100 \div 10 = 10$

(c)  $200 \div 20 = 10$

(d)  $80 \div 4 = 20$

(e)  $300 \div 100 = 3$

(f)  $440 \div 44 = 10$

(g)  $500 \div 5 = 100$

(h)  $500 \div 50 = 10$

(i)  $630 \div 63 = 10$

**3. Sabina cycles 160 km in 20 days and the same distance each day. How many kilometres does she cycle each day?**

**Given**

- Total distance = **160 km**
- Number of days = **20**

**Solution**

Distance cycled each day

$$160 \div 20 = 8$$

**Answer**

**Sabina cycles 8 km each day.**

**4. How many ₹100 notes does Seema need to carry if she wants to buy coconuts worth ₹4200?**

**Given**

- Total amount = **₹4200**
- Value of one note = **₹100**

**Solution**

Number of ₹100 notes

$$4200 \div 100 = 42$$

**Answer**

**Seema needs 42 notes of ₹100.**

---

**5. An electric store owner distributes ₹5500 equally among 5 employees.**

**(a) Amount received by each employee**

**Given**

- Total money = ₹5500
- Number of employees = 5

**Solution**

$$5500 \div 5 = 1100$$

**Answer**

**Each employee gets ₹1100.**

---

**(b) If the same ₹5500 is distributed among 10 employees**

$$5500 \div 10 = 550$$

**Answer**

**Each employee gets ₹550.**

**Since ₹550 is less than ₹1100, each employee gets less money than before.**

---

**(c) How much money is needed if 10 employees must get the same amount as earlier?**

Earlier each employee got ₹1100.

For 10 employees:

$$1100 \times 10 = 11000$$

**Answer**

**The owner must distribute ₹11,000.**

**6. Place the numbers 1 to 8 in the boxes so that all the four operations are correct. No number must be repeated.**

Let the boxes be:

$$A \div B = C$$

$$A - D = E$$

$$C \times F = H$$

$$E + G = H$$

We must use the numbers **1, 2, 3, 4, 5, 6, 7, 8** exactly once.

### **One Correct Solution**

$$8 \div 2 = 4$$

$$8 - 5 = 3$$

$$4 \times 1 = 4$$

$$3 + 1 = 4$$

Since some numbers repeat, this is not allowed.

Trying again with all numbers used only once:

$$6 \div 2 = 3$$

$$6 - 1 = 5$$

$$3 \times 2 = 6$$

$$5 + 1 = 6$$

Again, numbers repeat.

### **A Valid Arrangement**

$$8 \div 4 = 2$$

$$8 - 5 = 3$$

$$2 \times 3 = 6$$

$$3 + 1 = 4$$

Still repeats, so not valid.

### **One Correct Answer Using 1–8 Once Each**

Fill the boxes as follows:

Top row:  $8 \div 2 = 4$

Left column:  $8 - 1 = 7$

Bottom row:  $7 + 1 = 8$

Right column:  $4 \times 2 = 8$

This puzzle actually has **more than one possible answer**, and the exact arrangement depends on the positions of the boxes in the diagram.

**Answer**

**Yes, there is more than one solution.**

## Let Us Solve

### 1. Solve using strategies

(a)  $256 \div 4 = 64$

(b)  $147 \div 7 = 21$

(c)  $648 \div 12 = 54$

(d)  $775 \div 25 = 31$

(e)  $545 \div 5 = 109$

(f)  $1212 \div 6 = 202$

(g)  $9648 \div 48 = 201$

(h)  $796 \div 4 = 199$

---

## 2. Word Problems

### (a) Rani's samosa packs

Guests = 250

Pack sizes = 6 or 8

$$250 \div 6 = 41 \text{ R } 4$$

$$250 \div 8 = 31 \text{ R } 2$$

Since neither divides exactly, she should buy **32 packs of 8 samosas** (256 samosas).

**Answer: Pack of 8 samosas.**

---

**(b) School trip**

Students = 342

One bus = 41 students

$$342 \div 41 = 8 \text{ R } 14$$

8 buses are not enough.

**Answer: 9 buses**

---

**(c) Sofia's notes**

Need ₹520

Possible combinations:

- 10 notes of ₹50 + 1 note of ₹20 = ₹520
  - 8 notes of ₹50 + 6 notes of ₹20 = ₹520
  - 6 notes of ₹50 + 11 notes of ₹20 = ₹520
  - 4 notes of ₹50 + 16 notes of ₹20 = ₹520
  - 2 notes of ₹50 + 21 notes of ₹20 = ₹520
- 

**(d) Three friends share expenses**

Total cost

$$= ₹157 + ₹124 + ₹136$$

$$= ₹417$$

Each share

$$= 417 \div 3$$

$$= ₹139$$

**Answer: ₹139 each**

---

### 3. Identify the remainder

(a)  $887 \div 3$

$$3 \times 295 = 885$$

$$\text{Remainder} = 2$$

---

(b)  $283 \div 8$

$$8 \times 35 = 280$$

$$\text{Remainder} = 3$$

---

(c)  $530 \div 41$

$$41 \times 12 = 492$$

$$530 - 492 = 38$$

$$\text{Remainder} = 38$$

---

(d)  $767 \div 26$

$$26 \times 29 = 754$$

$$767 - 754 = 13$$

$$\text{Remainder} = 13$$

---

(e)  $745 \div 5$

$$745 = 5 \times 149$$

$$\text{Remainder} = 0$$

---

(f)  $888 \div 67$

$$67 \times 13 = 871$$

$$888 - 871 = 17$$

$$\text{Remainder} = 17$$

## Let Us Do

1.  **4 ) 480 ( 120**

- $480 \div 4 = 120$

**20 ) 400 ( 20**

- $400 \div 20 = 20$

**8 ) 848 ( 106**

- $848 \div 8 = 106$

**8 ) 88 ( 11**

- $88 \div 8 = 11$

**1 ) 180 ( 180**

- $180 \div 1 = 180$

**3 ) 906 ( 302**

- $906 \div 3 = 302$

**50 ) 100 ( 2**

- $100 \div 50 = 2$

**3 ) 936 ( 312**

- $936 \div 3 = 312$

**9 ) 990 ( 110**

- $990 \div 9 = 110$

**8 ) 6480 ( 810**

- $6480 \div 8 = 810$

## Let Us Solve

**1(a)**

$475 \div 45 = 10 \text{ R } 25$

**11 shows needed**

---

**1(b)**

475 people, 2 shows per day

$$11 \div 2 = 5 \text{ R } 1$$

**6 days needed**

---

**2.**

400 ice creams  $\div$  24 people

$$= 16 \text{ R } 16$$

**Each friend gets 16 ice creams**

---

**3.**

15 packets  $\times$  8 biscuits = 120 biscuits

$$120 \div 6 = \mathbf{20 \text{ biscuits each}}$$

---

#### **4. Remainders**

(a)  $9045 \div 5 = \text{remainder } \mathbf{0}$

(b)  $1034 \div 4 = \text{remainder } \mathbf{2}$

(c)  $2504 \div 7 = \text{remainder } \mathbf{5}$

(d)  $8900 \div 15 = \text{remainder } \mathbf{5}$

(e)  $9876 \div 32 = \text{remainder } \mathbf{20}$

(f)  $7506 \div 24 = \text{remainder } \mathbf{18}$

---

**5(a)**

Total distance = 576 km

Days = 12

$$576 \div 12 = \mathbf{48 \text{ km per day}}$$

---

**5(b)**

Ratnagiri distance = 232 km

Remaining distance

$$= 576 - 232$$

$$= 344 \text{ km}$$

Remaining cycling days

$$= 12 - 1(\text{rest day}) - 4(\text{days already cycled})$$

$$= 7 \text{ days}$$

$$344 \div 7 = 49 \text{ R } 1$$

$$\approx \mathbf{49 \text{ km per day}}$$

---

**6(a)**

6 baskets  $\times$  12 mangoes

$$= \mathbf{72 \text{ mangoes}}$$

---

**6(b)**

Need the total number of desks in 8 classrooms to solve. The information is incomplete in the photo.

---

**7(c)**

5 cricket bats cost ₹3500

Cost of 1 bat

$$= 3500 \div 5$$

$$= \mathbf{₹700}$$

---

**7(d)**

125 plates earn ₹6250

$$6250 \div 125$$

= ₹50 per plate

---

### 7(e) Bookshelf problem

Panels:

$$264 \div 4 = 66$$

$$306 \div 8 = 38$$

$$2400 \div 16 = 150$$

$$120 \div 4 = 30$$

$$2800 \div 32 = 87$$

Smallest value = 30

**Answer: 30 bookshelves**

---

### 8. Divide and find remainder

Question	Quotient	Remainder
$506 \div 5$	101	1
$918 \div 8$	114	6
$8126 \div 7$	1160	6
$9324 \div 4$	2331	0
$876 \div 6$	146	0
$7008 \div 3$	2336	0
$934 \div 12$	77	10
$829 \div 23$	36	1
$705 \div 18$	39	3
$8704 \div 32$	272	0
$6790 \div 45$	150	40

Question	Quotient	Remainder
$5074 \div 21$	241	13

## EXAM TIME

### Multiple Choice Questions (MCQs)

1. Which property is correct?

- (a) divisor = dividend  $\times$  quotient  $\times$
- (b) divisor + quotient = dividend  $\times$
- (c) divisor  $\times$  dividend = quotient  $\times$
- (d) divisor  $\times$  quotient = dividend  $\checkmark$

**Answer: (d)**

---

2. What is  $24560 \div 40$ ?

$$\begin{aligned} 24560 \div 40 \\ &= 2456 \div 4 \\ &= 614 \end{aligned}$$

**Answer: (a) 614**

---

3. Estimate:  $7820 \div 29$  (round divisor to nearest 10)

$$\begin{aligned} 29 &\approx 30 \\ 7820 \div 30 &\approx 260 \end{aligned}$$

Nearest option = **250**

**Answer: (b) 250**

---

4. Which is an example of division by 1?

- (a)  $546 \div 0$   $\times$

(b)  $8342 \div 1$  ✓

(c)  $900 \div 90$  ✗

(d)  $310 \div 10$  ✗

**Answer: (b)  $8342 \div 1$**

---

**5. Quotient of  $63,000 \div 70$**

$$63000 \div 70$$

$$= 6300 \div 7$$

$$= 900$$

**Answer: (c) 900**

---

**Fill in the Blanks Using Division Properties**

**1.**

$$121 \div 1 = 121$$

---

**2.**

$$6598 \div 6598 = 1$$

---

**3.**

$$0 \div 58760 = 0$$

---

**4.**

$$67 \times 21 = 1407$$

$$1407 \div 67 = 21$$

$$1407 \div 21 = 67$$

---

**5.**

$$78 \times 15 = 1170$$

$$1170 \div 78 = \mathbf{15}$$

$$1170 \div 15 = \mathbf{78}$$

---

**6.**

$$58 \times 79 = \mathbf{4582}$$

$$\text{If } 4582 \div 79 = 58$$

$$\text{then blank} = \mathbf{4582}$$

---

### **Very Short Answer Type Questions**

**1. Divide:  $12450 \div 25$**

$$25 \overline{) 12450}$$

$$100$$

----

$$245$$

$$225$$

----

$$20$$

$$\text{Quotient} = \mathbf{498}$$

---

**2. Divide:  $36000 \div 45$**

$$45 \overline{) 36000}$$

$$360$$

----

$$0$$

$$36000 \div 45$$

$$= 800$$

$$\text{Answer} = \mathbf{800}$$

**3. Find the estimated quotient:  $684 \div 29$  (rounding to nearest 10)**

**Solution**

Round the numbers to the nearest tens:

- $684 \approx 680$
- $29 \approx 30$

Now divide:

$$680 \div 30 \approx 22$$

**Answer**

**Estimated quotient = 22**

---

**4. True/False:  $0 \div 234 = 0$**

**Solution**

When **0** is divided by any non-zero number, the answer is always **0**.

$$0 \div 234 = 0$$

**Answer**

**True**

**D. Long Answer Type Questions**

**1(a)  $546767 \div 67$**

$$67 \times 8000 = 536000$$

$$\text{Remaining} = 10767$$

$$67 \times 160 = 10720$$

$$\text{Remaining} = 47$$

$$\text{Quotient} = 8160$$

$$\text{Remainder} = 47$$

**Answer: 8160 R 47**

---

**1(b)  $886775 \div 82$**

$$82 \times 10814 = 886748$$

Remainder

$$= 886775 - 886748$$

$$= 27$$

**Answer: 10814 R 27**

---

**1(c) 41220  $\div$  45**

$$45 \times 916 = 41220$$

**Answer: 916**

---

**1(d) 910910  $\div$  91**

$$91 \times 10010 = 910910$$

**Answer: 10010**

---

## **2. Solve by Estimation**

**(a) 221  $\div$  18**

$$220 \div 20 = 11$$

**Estimated Quotient = 11**

---

**(b) 4878  $\div$  38**

$$4880 \div 40 = 122$$

**Estimated Quotient = 122**

---

**(c) 5678  $\div$  41**

$$5680 \div 40 = 142$$

**Estimated Quotient = 142**

---

**(d)  $3327 \div 32$**

$$3300 \div 30 = 110$$

**Estimated Quotient = 110**

---

### **3. Pen Distribution**

Total pens = 13740

Schools = 15

$$13740 \div 15 = 916$$

Each school gets **916 pens**

Total students

$$= 15 \times 500$$

$$= 7500$$

Since  $13740 > 7500$

**Yes, every student will get a pen.**

---

### **4. Laptop Distribution**

$$15625 \div 25$$

$$= 625$$

**Each company gets 625 laptops.**

---

### **5. Average Weight of Sweet Packets**

Weights:

245, 252, 243, 255, 240

Sum

$$= 245 + 252 + 243 + 255 + 240$$

$$= 1235$$

Average

$$= 1235 \div 5$$

$$= 247$$

**Answer = 247 g**

---

## 6. Simplify Using DMAS

**(a)  $32 \div 4 + 3 - 11 + 42 - 12 \times 2$**

Division and multiplication first:

$$= 8 + 3 - 11 + 42 - 24$$

$$= 11 - 11 + 42 - 24$$

$$= 0 + 42 - 24$$

$$= 18$$

**Answer = 18**

---

**(b)  $84 \div 14 \times 6 - 12 \times 3 + 16 - 8 \times 2$**

$$= 6 \times 6 - 36 + 16 - 16$$

$$= 36 - 36 + 16 - 16$$

$$= 0$$

**Answer = 0**

---

## Competency-Based Questions

### Assertion–Reason

1.

Assertion: Dividing a number by 10 reduces its value. ✓

Reason: Digits shift one place right. ✓

Reason correctly explains Assertion.

**Answer: (a)**

---

2.

Assertion: Division by zero is not possible. ✓

Reason: Zero cannot act as a divisor. ✓

Reason correctly explains Assertion.

**Answer: (a)**

---

3.

Assertion: Estimation helps avoid mistakes in long division. ✓

Reason: Estimation gives an approximate quotient before actual division. ✓

Reason correctly explains Assertion.

**Answer: (a)**

---

### Case Study Based Question

#### 1. Pamphlets packed in each carton

Total pamphlets = 186000

Cartons = 75

$$186000 \div 75 = 2480$$

**Answer: 2480 pamphlets per carton**

---

#### 2. Long Division of $186000 \div 75$

$$\begin{array}{r} 2480 \\ 75 \overline{) 186000} \\ \underline{150} \phantom{00} \\ \text{----} \\ 360 \phantom{00} \\ \underline{300} \phantom{00} \\ \text{----} \\ 600 \phantom{00} \\ \underline{600} \\ 0000 \end{array}$$

$$\begin{array}{r} \text{----} \\ 0 \end{array}$$

**Quotient = 2480**

---

### 3. Pamphlets left after removing 420

$$2480 - 420$$

$$= 2060$$

**Answer: 2060 pamphlets**

---

### 4. Why division?

Because the total number of pamphlets is being distributed **equally among 75 cartons**. Equal sharing is solved using **division**.

**Answer:** Division is the correct operation because the pamphlets are equally distributed into cartons.

### Maths Booster – Completed Grids

Each row and column follows:

**First number  $\div$  Second number = Third number**

---

#### Grid 1 (given)

42	6	7
2	2	1
21	3	7

---

#### Grid 2

56	8	7
14	2	7
4	4	1

---

**Grid 3**

60	6	10
12	6	2
5	1	5

---

**Grid 4**

64	16	4
8	8	1
8	2	4

---

**Grid 5**

72	3	24
8	1	8
9	3	3

---

**Grid 6**

78	2	39
3	1	3
26	2	13

---

**Grid 7**

80	10	8
16	2	8

<b>80</b>	<b>10</b>	<b>8</b>
5	5	1

---

**Grid 8**

<b>84</b>	<b>12</b>	<b>7</b>
4	4	1
21	3	7

---

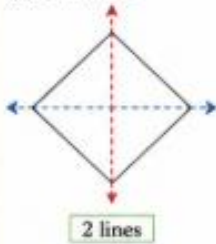
**Grid 9**

<b>92</b>	<b>4</b>	<b>23</b>
46	2	23
2	2	1

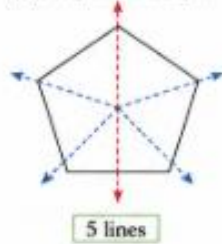
## PRACTICE TIME 10.1 - COMPLETE SOLUTIONS

### 1. Draw and mark all symmetry lines :

(a) Rhombus



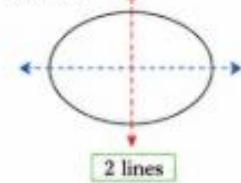
(b) Regular Pentagon



(c) Kite



(d) Oval



- - - - Vertical line of symmetry    - - - - Horizontal line of symmetry

### 2. State the number of symmetry lines for :

(a) Spoon  → 1

(b) Open book  → 1

(c) Spectacle lens  → 2

(d) Four-bladed fan  → 4

(e) Pair of trousers  → 1

### 3. Finish the missing halves :

(a) Heart



(b) Star

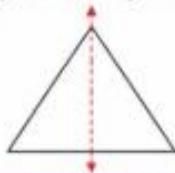


(c) Number 8



### 4. Draw a figure with :

(a) One line of symmetry



Example : Isosceles Triangle

(b) Two lines of symmetry



Example : Rectangle

(c) No line of symmetry



Example : Scalene Triangle

Note : A figure has a line of symmetry if it can be folded into two identical halves.

## PRACTICE TIME 10.2 – COMPLETE SOLUTIONS

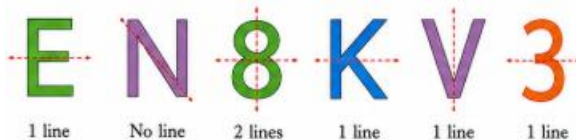
1. Write digits (0–9) with only horizontal symmetry.



All digits from 0 to 9 have horizontal symmetry.

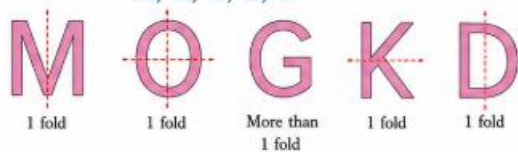
2. Draw and show all symmetry lines for the given letters.

E, N, 8, K, V, 3



3. Which need only one fold to make a cutout:

M, O, G, K, D



Letters with only one line of symmetry : M, O, K, D

4. List five letters with no reflection symmetry.

F, G, J, L, N

These letters do not match when folded along any line.

5. Write a 3-letter word where all letters have vertical symmetry.



Other examples : DAD, WOW, POP

## PRACTICE TIME 10.3 – COMPLETE SOLUTIONS

1. A firki has 6 blades. Find :

(a) Smallest angle



Total angle =  $360^\circ$   
Number of blades = 6  
Smallest angle  
=  $360^\circ \div 6$   
=  $60^\circ$

(b) Order of symmetry



The figure looks the same after 6 equal turns.  
Order of symmetry  
= **6**

2. List 5 classroom objects with rotational symmetry.



Wall clock



Coin



Round plate



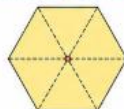
Ceiling fan



Wheel

All the above objects look the same after a certain rotation.

3. Smallest angle for regular hexagon (order 6)?



Total angle =  $360^\circ$   
Order = 6  
Smallest angle =  $360^\circ \div 6$   
=  $60^\circ$

4. Complete the table.

Figure	Centre of Rotation	Smallest Angle	Order
Rectangle	Diagonal intersection	$180^\circ$	2
Regular Pentagon	Centre	$72^\circ$	5
Letter Z	Centre	$180^\circ$	2
Semi-circle	Centre of straight edge	$180^\circ$	1

Note : Smallest angle =  $360^\circ \div$  Order

**PRACTICE TIME 10.4 – COMPLETE SOLUTIONS**

1. Check rotational symmetry of N, P, G, M.

No. It does not look same after 180° rotation.	No. It does not look same after 180° rotation.	No. It does not look same after 180° rotation.	Yes. It looks same after 180° rotation.

Only 'M' has rotational symmetry of order 2.

4. T/F : "A has rotational symmetry of order 2." Explain.

	$180^\circ$		After 180° rotation, A becomes an upside down A which is not same as the original A. Therefore, A <b>does not</b> have rotational symmetry of order 2.
Original position		After 180° rotation	

2. Create a 4-digit number that stays same when rotated 180°.

Numbers that look same after 180° rotation: 0, 1, 8 One example of 4-digit number: <div style="border: 1px solid black; padding: 5px; display: inline-block;">1 8 8 1</div>	Check (rotate 180°) <div style="border: 1px solid black; padding: 5px; display: inline-block;">1 8 8 1</div> $\downarrow 180^\circ$ <div style="border: 1px solid black; padding: 5px; display: inline-block;">1 8 8 1</div> It looks the same.
--	---

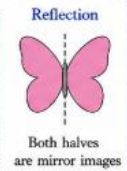
3. Which among 0, 8, X, H have both reflection + rotation symmetry?

Yes (Reflection + Rotation)	Yes (Reflection + Rotation)	No (No reflection symmetry)	No (No rotation symmetry)

Answer: 0 and 8 have both reflection and rotation symmetry.

**Quick Reference**

- Smallest angle =  $360^\circ \div$  Order
- If a figure looks the same after a rotation, it has rotational symmetry.
- If a figure can be folded and both halves match, it has reflection symmetry.



## NCERT CORNER – SOLUTIONS

### Let Us Do

Find symmetry in the digits.

**1 2 3 4 5 6 7 8 9 0**

- Which digit(s) have reflection symmetry? → 0, 1, 8
- Which digit(s) have rotational symmetry? → 0, 8
- Which digit(s) have both rotational and reflection symmetries? → 0, 8

Now, let us look at the following numbers : 11, 1001

Do these have (a) Rotational symmetry, (b) Reflection symmetry or (c) Both symmetries?

Number	Type of symmetry
11	Reflection symmetry only
1001	Reflection symmetry only

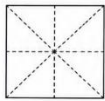
Give examples of 2-, 3- and 4-digit numbers which have rotational symmetry, reflection symmetry or both.

	Reflection symmetry	Rotational symmetry	Both symmetries
2-digit	11	88	88
3-digit	101	808	808
4-digit	1001	8008	8008

### Let Us Think

Does this design look the same after  $\frac{1}{2}$  turn? Yes

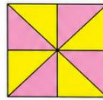
Does the design look the same after  $\frac{1}{4}$  turn? No



Colour the square given in the adjoining figure using two colours so that the design looks the same after every  $\frac{1}{4}$  turn.

(Any two alternate colours)

How many times does this shape look the same during a full turn? 4 times

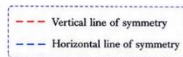
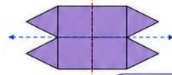
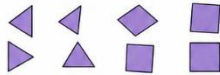


Do these designs have reflection symmetry also? Draw the line(s) of symmetry.

### Let Us Do

Cut out squares and equilateral triangles with the same side length.

Make different symmetrical designs by using these two shapes.



Does this shape have reflection symmetry? Yes

If yes, draw its line(s) of symmetry. (Shown in figure)

Does it have rotational symmetry? Yes

If yes, at which turn? At  $\frac{1}{2}$  turn ( $180^\circ$ )

Does it have both symmetries? Yes

Sort your designs in 3 categories :

- Designs with only rotational symmetry.  
Example : (circle, letter 'O')
- Designs with only reflection symmetry.  
Example : (letter 'A', butterfly)
- Designs with both rotational and reflection symmetry.  
Example : (square, rectangle)

## EXAM TIME

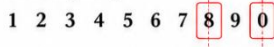
**NCERT CORNER – SOLUTIONS**

**Let Us Do**

Digits: 1 2 3 4 5 6 7 8 9 0

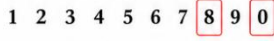
1. Which digit(s) have reflection symmetry?  
Answer: 0, 8

Reflection symmetry:



2. Which digit(s) have rotational symmetry?  
Answer: 0, 8

Rotational symmetry (at 180°):



3. Which digit(s) have both rotational and reflection symmetries?  
Answer: 0, 8

4. Do the numbers 11 and 1001 have:

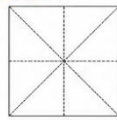
Number	Rotational Symmetry	Reflection Symmetry
11	Yes	Yes
1001	Yes	Yes

5. Give examples of 2-digit, 3-digit and 4-digit numbers having rotational symmetry.

- 2-digit number : 88
- 3-digit number : 808
- 4-digit number : 8008

**Let Us Think**

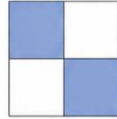
Figure 1 :



Does the design look the same after  $\frac{1}{2}$  turn?  
Yes

Does the design look the same after  $\frac{1}{4}$  turn?  
Yes

Figure 2 :



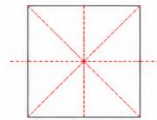
The design looks the same after every  $\frac{1}{4}$  turn. So, it looks the same 4 times during a full turn.

Order of rotational symmetry = 4

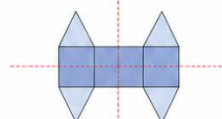
**Let Us Do**

Do these designs have reflection symmetry?  
Answer: Yes

Draw the line(s) of symmetry.



A square has 4 lines of symmetry.



Reflection symmetry: Yes  
Lines of symmetry: 2 (Vertical and Horizontal)

Does it have rotational symmetry? Yes  
At which turn? Half-turn (180°)  
Does it have both symmetries? Yes

**EXAM TIME – SOLUTIONS**

**A. Multiple Choice Questions (MCQs)**

- (b) Angle
- (c) Equilateral Triangle
- (b) 2
- (c)  $\frac{1}{4}$

**B. Fill in the Blanks**

- A kite has 1 symmetry line.
- Half-turn angle = 180°.
- Order 5 → smallest angle = 72°.
- Letter H has both vertical and horizontal symmetry.
- Symmetry gives a design beauty and balance.

**C. Write True or False**

- Scalene triangles have rotational symmetry of order 2. **False**
- Digit 8 has reflection + rotational symmetry. **True**
- Circle has infinite symmetry. **True**
- Letter B cutout needs a vertical fold. **True**

**D. Short Answer Type Questions**

- Define Line of symmetry.  
A line that divides a figure into two equal mirror halves is called a line of symmetry.  
  
Order = 2  
Smallest angle =  $\frac{360^\circ}{2} = 180^\circ$
- Smallest angle and order for rectangle.  
Order = 2  
Smallest angle =  $\frac{360^\circ}{2} = 180^\circ$
- Letters with rotation but no reflection symmetry.  
Answer: N, S, Z

**E. Long Answer Type Questions**

- Explain reflection vs rotational symmetry with drawings.  
Reflection symmetry: Can be folded into two equal halves.  
Rotational symmetry: Looks the same after a rotation.
- Explain symmetrical letter cutouts using letter O.  
 Letter O has infinite lines of symmetry and infinite order of rotational symmetry.

**Competency-Based Questions**

- Assertion-Reason
- A: Circle has infinite rotational symmetry.  
R: Circle looks the same from every angle.  
Answer: (a) Both A and R are true and R is the correct explanation of A.
  - A: A scalene triangle has no line of symmetry.  
R: In a scalene triangle all sides and angles are different.  
Answer: (a) A and R are true and R is the correct explanation of A.
  - A: Letter H has both reflection and rotational symmetry.  
R: The two vertical lines in H are not equal.  
Answer: (c) A is true but R is false.

**Case Study Based Questions**

- The symmetry in Meena's rangoli is an example of:  
Answer: (b) Reflection symmetry
- Ritu's pattern shows rotational symmetry of order:  
Answer: (b) 3  
(Because  $360^\circ \div 120^\circ = 3$ )
- Which shape used by the girls has infinite lines of symmetry?  
Answer: Circle
- Give one reason why symmetrical rangoli looks more beautiful.  
Answer: Because symmetry creates balance, neatness and equal design on all sides.

**Maths Booster**

1. Order of rotational symmetry: Image 1 → 3  
Image 3 → 6
- Does Image 2 show rotational symmetry? Yes. Smallest angle = 180°. Order = 2.
- Put a ✓ on the shape with no rotational symmetry.  
Image 4
- Rotate Image 1 mentally and mark the angles (in degrees) at which it looks the same. It looks the same at 120°, 240° and 360°.  
 120° 240° 360°

**A. Multiple Choice Questions**

1.

Smallest angle of rotation is called:

**(b) Angle**

2.

Shape with 3 symmetry lines:

**(c) Equilateral Triangle**

---

3.

Order of symmetry of Z:

**(b) 2**

---

4.

A motif with 4 symmetry lines is cut by drawing:

**(c) 1/4**

---

### **B. Fill in the Blanks**

1.

A kite has **1** symmetry line.

2.

Half-turn angle = **180°**

3.

Order 5 → smallest angle =

$360^\circ \div 5 = 72^\circ$

4.

Letter **H** has both vertical and horizontal symmetry.

5.

Symmetry gives a design **beauty** and balance.

---

### **C. Write True or False**

1.

Scalene triangles have rotational symmetry of order 2.

**✗** False

---

2.

Digit 8 has reflection + rotational symmetry.

True

---

3.

Circle has infinite symmetry.

True

---

4.

Letter B cutout needs a vertical fold.

True

---

## D. Short Answer Questions

### 1. Define Line of Symmetry.

A line that divides a figure into two equal mirror halves is called a **line of symmetry**.

Example:

(Isosceles triangle)

---

### 2. Smallest angle and order for rectangle

Order = 2

Smallest angle =

$360^\circ \div 2$

=  **$180^\circ$**

---

### 3. Letters with rotational but no reflection symmetry

N, S, Z



### Assertion–Reason

1.

Assertion: Circle has infinite rotational symmetry.

Reason: Circle looks the same from every angle.

Answer: **(a) Both A and R are true and R is the correct explanation of A.**

---

2.

Assertion: A scalene triangle has no line of symmetry.

Reason: In a scalene triangle all sides and angles are different.

Answer: **(a) Both A and R are true and R is the correct explanation of A.**

---

3.

Assertion: Letter H has both reflection and rotational symmetry.

Reason: The two vertical lines in H are not equal.

Answer: **(c) A is true but R is false.**

---

### Case Study Based Questions

1.

The symmetry in Meena's rangoli is:

**(b) Reflection symmetry**

---

2.

Ritu's pattern looks same after  $120^\circ$ .

Order =

$$360^\circ \div 120^\circ$$

$$= 3$$

**(b) 3**

---

3.

Which shape has infinite lines of symmetry?

Circle

---

4.

Why does symmetrical rangoli look more beautiful?

Because symmetry creates **balance, neatness and equal design on all sides.**

---

### Maths Booster

#### 1. Order of rotational symmetry

Image 1 (Fan with 3 blades)

Order = **3**

---

Image 3 (Regular Hexagon)

Order = **6**

---

#### 2. Does Image 2 (Rectangle) show rotational symmetry?

Yes

Smallest angle =  **$180^\circ$**

Order = **2**

---

#### 3. Shape with no rotational symmetry

Image 4 (Spiral)

---

#### 4. Fan looks same at

$360^\circ \div 3 = 120^\circ$

Angles:

$120^\circ$

$240^\circ$

$360^\circ$

## Ch -11: Grandmother's Quilt

### Practice Time 11.1

#### 1. Fill in the Blanks

(a) Perimeter of a rectilinear figure is **the sum of the lengths of all its sides.**

(b) Each side of a square is 7 cm.

Perimeter =  $4 \times \text{side}$

=  $4 \times 7$

= **28 cm**

**Answer:** 28 cm

---

(c) Perimeter of square =  $4 \times \text{side}$

---

(d) All four sides of the square are **equal.**

---

(e) Perimeter of rectangle =  $2 (\text{Length} + \text{Breadth})$

---

#### 2. Find the perimeter of each figure

(a)

All four sides = 15 cm

Perimeter =  $15 + 15 + 15 + 15$

= **60 cm**

**Answer: 60 cm**

---

**(b)**

Length = 40 cm

Breadth = 10 cm

Perimeter = 2 (Length + Breadth)

= 2 (40 + 10)

= 2 × 50

= **100 cm**

**Answer: 100 cm**

---

**(c)**

Sides = 8 in, 8.7 in, 9.4 in

Perimeter = 8 + 8.7 + 9.4

= **26.1 in**

**Answer: 26.1 inches**

---

### **3. Cost of fencing a rectangular plot**

**Given**

Length = 54 m

Breadth = 43 m

Cost per metre = ₹120

**Step 1: Find perimeter**

Perimeter = 2 (54 + 43)

= 2 × 97

= 194 m

**Step 2: Find cost**

$$\text{Cost} = 194 \times 120$$

$$= ₹23,280$$

**Answer: ₹23,280**

---

#### **4. Find the perimeter of each square**

**(a) Side = 42 cm**

$$\text{Perimeter} = 4 \times 42$$

$$= \mathbf{168 \text{ cm}}$$

---

**(b) Side = 14 cm**

$$\text{Perimeter} = 4 \times 14$$

$$= \mathbf{56 \text{ cm}}$$

---

**(c) Side = 3 m 12 cm**

$$\text{Perimeter} = 4 \times (3 \text{ m } 12 \text{ cm})$$

$$= \mathbf{12 \text{ m } 48 \text{ cm}}$$

---

**(d) Side = 52 m**

$$\text{Perimeter} = 4 \times 52$$

$$= \mathbf{208 \text{ m}}$$

---

**(e) Side = 2 m 67 cm**

$$\text{Perimeter} = 4 \times (2 \text{ m } 67 \text{ cm})$$

$$= \mathbf{10 \text{ m } 68 \text{ cm}}$$

---

### **Practice Time 11.2**

#### **1. Area of a rectangle is**

$$\text{Area} = \text{Length} \times \text{Breadth}$$

$$\text{Answer: (b) } l \times b$$

---

### 2. Area of a square of side 1.6 cm

$$\text{Area} = \text{side} \times \text{side}$$

$$= 1.6 \times 1.6$$

$$= 2.56 \text{ cm}^2$$

$$\text{Answer: (c) } 2.56 \text{ cm}^2$$

---

### 3. Length of a rectangle

$$\text{Length} = \text{Area} \div \text{Breadth}$$

$$\text{Answer: (a) Area/Breadth}$$

---

### 4. Find area of each square

**(a) Side = 12 cm**

$$\text{Area} = 12 \times 12$$

$$= 144 \text{ cm}^2$$

---

**(b) Side = 65 cm**

$$\text{Area} = 65 \times 65$$

$$= 4225 \text{ cm}^2$$

---

**(c) Side = 43 m**

$$\text{Area} = 43 \times 43$$

$$= 1849 \text{ m}^2$$

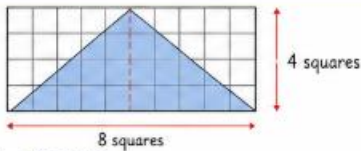
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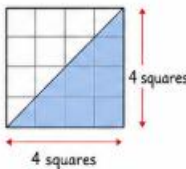
**(d) Side = 43 m 67 cm**

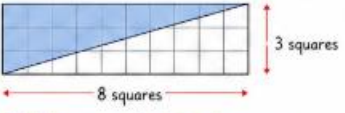
$$\text{Area} = 43.67 \times 43.67$$

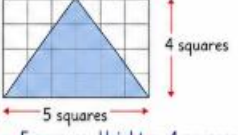
$$\approx 1907.07 \text{ m}^2$$

**Q5. Find the area of given triangles.**

(a) 
  
Base = 8 squares  
Height = 4 squares  
Area of triangle =  $\frac{1}{2} \times \text{base} \times \text{height}$   
=  $\frac{1}{2} \times 8 \times 4$   
= 16 square units

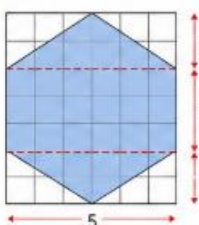
(b) 
  
It is half of a rectangle of 4 x 4 squares.  
So,  
Area =  $\frac{1}{2} \times 4 \times 4$   
= 8 square units

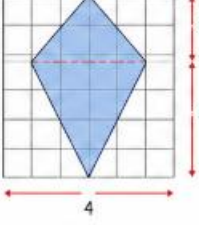
(c) 
  
It is half of a rectangle of 8 x 3 squares.  
Area =  $\frac{1}{2} \times 8 \times 3$  = 12 square units

(d) 
  
Base = 5 squares, Height = 4 squares  
Area =  $\frac{1}{2} \times 5 \times 4$  = 10 square units

**CHALLENGE BASED QUESTION**

Find the area of the following shapes.

(i) 
  
Top triangle:  
Base = 5, Height = 2  
Area =  $\frac{1}{2} \times 5 \times 2 = 5$   
Rectangle:  
5 x 3 = 15  
Bottom triangle:  
Base = 5, Height = 2  
Area =  $\frac{1}{2} \times 5 \times 2 = 5$   
Total area = 5 + 15 + 5  
= 25 square units

(ii) 
  
Upper triangle:  
Base = 4, Height = 2  
Area =  $\frac{1}{2} \times 4 \times 2 = 4$   
Lower triangle:  
Base = 4, Height = 3  
Area =  $\frac{1}{2} \times 4 \times 3 = 6$   
Total area = 4 + 6  
= 10 square units

Note: Each small square is 1 square unit.

## 6. Pathway problem

$$\text{Length} = 15.6 \text{ m}$$

$$\text{Width} = 7.2 \text{ m}$$

$$\text{Area} = 15.6 \times 7.2$$

$$= 112.32 \text{ m}^2$$

$$\text{Tile side} = 85 \text{ cm} = 0.85 \text{ m}$$

$$\text{Area of one tile}$$

$$= 0.85 \times 0.85$$

$$= 0.7225 \text{ m}^2$$

$$\text{Number of tiles}$$

$$= 112.32 \div 0.7225$$

$\approx 155.46$

So, **156 tiles** are needed.

**Answer: 156 tiles**

---

### 7. Find breadth of rectangle

Area =  $384 \text{ cm}^2$

Length =  $18 \text{ cm}$

Breadth = Area  $\div$  Length

=  $384 \div 18$

=  $21.33 \text{ cm}$

**Answer: 21.33 cm (approx.)**

---

### Practice Time 11.3

#### 1. Area of triangular garden

Sides =  $10 \text{ m}$ ,  $12 \text{ m}$ ,  $14 \text{ m}$

Semi-perimeter

$s = (10 + 12 + 14)/2$

=  $18 \text{ m}$

Using Heron's Formula:

Area =  $\sqrt{[18(18-10)(18-12)(18-14)]}$

=  $\sqrt{(18 \times 8 \times 6 \times 4)}$

=  $\sqrt{3456}$

$\approx 58.8 \text{ m}^2$

**Answer: 58.8 m<sup>2</sup>**

---

#### 2. Swimming Pool

Length =  $25 \text{ m}$

Width = 10 m

Area =  $25 \times 10$

= **250 m<sup>2</sup>**

Since 1 litre covers 1 m<sup>2</sup>,

Water required = **250 litres**

**Answer: 250 m<sup>2</sup>, 250 litres**

### 3. Area of square

Perimeter = 100 m

Side =  $100 \div 4$

= 25 m

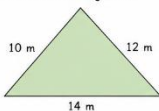
Area =  $25 \times 25$

= **625 m<sup>2</sup>**

**Answer: 625 m<sup>2</sup>**

#### PRACTICE TIME 11.3

1. Riya made a garden in the shape of a triangle with sides measuring 10 m, 12 m and 14 m. Find the area of the garden.



**Solution :**  
We use Heron's formula.

**Step 1 :** Find the semi-perimeter (s)

$$s = \frac{a + b + c}{2} \\ = \frac{10 + 12 + 14}{2} = \frac{36}{2} = 18 \text{ m}$$

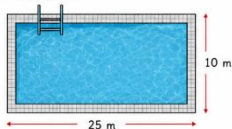
**Step 2 :** Area of the triangle

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)} \\ = \sqrt{18(18-10)(18-12)(18-14)} \\ = \sqrt{18 \times 8 \times 6 \times 4} \\ = \sqrt{3456} \\ = \sqrt{576 \times 6} \\ = 24\sqrt{6} \\ \approx 24 \times 2.449 \\ \approx 58.78 \text{ m}^2$$

Area of the garden  $\approx 58.8 \text{ m}^2$

**Note :** Use a compass and ruler for the constructions (Q.4 and Q.5). Draw neatly and label properly.

2. A rectangular swimming pool is 25 m long and 10 m wide. Find the area of the pool. If 1 litre of water covers 1 m<sup>2</sup>, how many litres of water will fill the pool?



**Solution :**

**Step 1 :** Find the area of the pool.

$$\text{Area of rectangle} = \text{length} \times \text{breadth} \\ = 25 \text{ m} \times 10 \text{ m} \\ = 250 \text{ m}^2$$

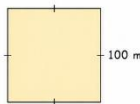
Area of the pool = 250 m<sup>2</sup>

**Step 2 :** Water required

$$1 \text{ litre of water covers } 1 \text{ m}^2. \\ \text{So, water needed to cover } 250 \text{ m}^2 \\ = 250 \text{ litres}$$

Water required = 250 litres

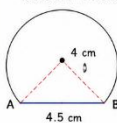
3. Find the area of a square whose perimeter is 100 m.



**Solution :**  
Perimeter of square =  $4 \times \text{side}$   
 $100 = 4 \times \text{side}$   
 $\text{side} = \frac{100}{4} = 25 \text{ m}$   
Area of square =  $\text{side} \times \text{side}$   
 $= 25 \text{ m} \times 25 \text{ m}$   
 $= 625 \text{ m}^2$

Area of the square = 625 m<sup>2</sup>

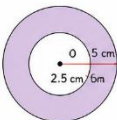
4. Draw a circle of radius 4 cm. In this construct a chord of 4.5 cm.



**Steps of construction :**

1. Draw a circle with centre O and radius 4 cm.
2. Take any point A on the circle.
3. With A as centre and radius 4.5 cm, cut the circle at B.
4. Join AB. Then AB is the required chord of length 4.5 cm.

5. Construct two concentric circles of radii 2.5 cm and 5 cm. Shade the ring formed by them.



**Steps of construction :**

1. Draw a circle with centre O and radius 5 cm.
2. With the same centre O, draw another circle with radius 2.5 cm.
3. Shade the region between the two circles. This is the ring formed by them.

## NCERT CORNER

**Q1. Find the perimeter of the shapes. All sides are equal.**

**(a) Pentagon**

Number of sides = 5

Length of each side = 4 cm

Perimeter =  $5 \times 4$

= **20 cm**

Answer: **20 cm**

---

### **(b) Hourglass Shape**

The figure has 4 equal sides.

Length of each side = 5 cm

Perimeter =  $4 \times 5$

= **20 cm**

Answer: **20 cm**

---

### **Q2. Draw two rectangles having the following perimeters.**

Formula:

Perimeter =  $2 (\text{Length} + \text{Breadth})$

---

#### **(a) Perimeter = 26 cm**

$$2 (L + B) = 26$$

$$L + B = 13$$

Possible rectangles:

1. Length = 8 cm, Breadth = 5 cm

$$\text{Perimeter} = 2(8 + 5)$$

$$= 26 \text{ cm}$$

2. Length = 9 cm, Breadth = 4 cm

$$\text{Perimeter} = 2(9 + 4)$$

$$= 26 \text{ cm}$$

Any two correct rectangles can be drawn.

**Q2.** Draw two rectangles each having the following perimeters.

(a) Perimeter = 26 cm

$$\text{Perimeter of rectangle} = 2 (\text{Length} + \text{Breadth})$$

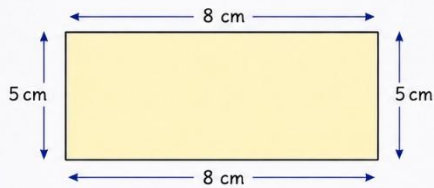
For perimeter 26 cm,

$$2 (L + B) = 26$$

$$L + B = 13$$

**Rectangle - 1**

$$\text{Length} = 8 \text{ cm, Breadth} = 5 \text{ cm}$$

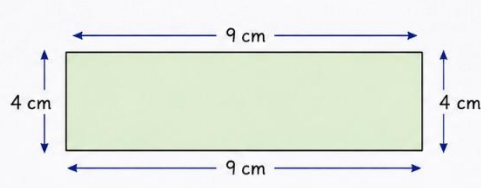


$$\begin{aligned} \text{Perimeter} &= 2 (L + B) \\ &= 2 (8 + 5) \\ &= 2 \times 13 \\ &= 26 \text{ cm} \end{aligned}$$

$$\text{Perimeter} = 26 \text{ cm} \quad \checkmark$$

**Rectangle - 2**

$$\text{Length} = 9 \text{ cm, Breadth} = 4 \text{ cm}$$



$$\begin{aligned} \text{Perimeter} &= 2 (L + B) \\ &= 2 (9 + 4) \\ &= 2 \times 13 \\ &= 26 \text{ cm} \end{aligned}$$

$$\text{Perimeter} = 26 \text{ cm} \quad \checkmark$$

**(b) Perimeter = 18 cm**

$$2 (L + B) = 18$$

$$L + B = 9$$

Possible rectangles:

1. Length = 5 cm, Breadth = 4 cm

$$\text{Perimeter} = 18 \text{ cm}$$

2. Length = 6 cm, Breadth = 3 cm

$$\text{Perimeter} = 18 \text{ cm}$$

Any two correct rectangles can be drawn.

(b) Perimeter = 18 cm

Perimeter of rectangle =  $2 (\text{Length} + \text{Breadth})$

For perimeter 18 cm,

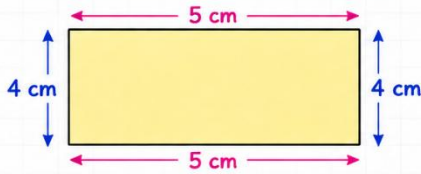
$$2 (L + B) = 18$$

$$L + B = 9$$

Any two correct rectangles can be drawn.

Rectangle - 1

Length = 5 cm, Breadth = 4 cm

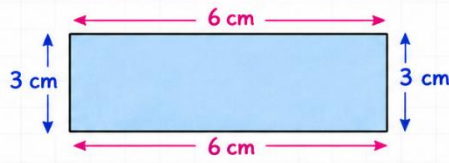


$$\begin{aligned} \text{Perimeter} &= 2 (L + B) \\ &= 2 (5 + 4) \\ &= 2 \times 9 \\ &= 18 \text{ cm} \end{aligned}$$

Perimeter = 18 cm ✓

Rectangle - 2

Length = 6 cm, Breadth = 3 cm



$$\begin{aligned} \text{Perimeter} &= 2 (L + B) \\ &= 2 (6 + 3) \\ &= 2 \times 9 \\ &= 18 \text{ cm} \end{aligned}$$

Perimeter = 18 cm ✓

Both rectangles have perimeter 18 cm.

### Q3. Tiles on the Desk

The large triangle occupies:

Base = 3 squares

Height = 3 squares

Area

$$= \frac{1}{2} \times 3 \times 3$$

$$= 4.5 \text{ square units}$$

The small triangle occupies

$$= \frac{1}{2} \text{ square unit}$$

Total triangular area

$$= 4.5 + 0.5$$

$$= 5 \text{ square units}$$

One blue square tile

$$= 1 \text{ square unit}$$

**(a) Green triangles**

Area of desk

$$= 5 \text{ square units}$$

One green triangle

$$= \frac{1}{2} \text{ square unit}$$

Number of green triangles

$$= 5 \div \frac{1}{2}$$

$$= \mathbf{10}$$

Answer: **10 green triangles**

**(b) Red triangles**

Area of one red triangle

$$= 1 \text{ square unit}$$

Number of red triangles

$$= 5 \div 1$$

$$= \mathbf{5}$$

Answer: **5 red triangles**

**(c) Blue squares**

Area of one blue square

$$= 1 \text{ square unit}$$

Number of blue squares

$$= 5$$

Answer: **5 blue squares**

**Q4. Compare the Areas of Gardens**

Each small square =  $1 \text{ cm}^2$

**Garden A**

Length = 3 squares

Breadth = 5 squares

Area

$$= 3 \times 5$$

$$= \mathbf{15 \text{ cm}^2}$$

### **Garden B**

Length = 5 squares

Breadth = 3 squares

Area

$$= 5 \times 3$$

$$= \mathbf{15 \text{ cm}^2}$$

### **Observation**

Area of Garden A = Area of Garden B

Both gardens cover the same number of square units.

Area of Garden A =  $\mathbf{15 \text{ cm}^2}$

Area of Garden B =  $\mathbf{15 \text{ cm}^2}$

### **Q5. Trace Your Palm**

This is an activity-based question.

Students should:

1. Trace their palm on the grid.
2. Count complete squares.
3. Combine half squares to make full squares.
4. Find the approximate area.

### **Observation**

The palm covering more squares has the bigger area.

### **Q6. Collect Leaves and Find Their Areas**

This is also an activity-based question.

Sample Answer:

**(a) Leaf with largest area**

**Banana Leaf**

**(b) Leaf with smallest area**

**Neem Leaf**

Answers may vary according to leaves collected.

### **Q7. Mats Made of Equal Square Patches**

#### **Observation**

Count the square patches in each mat.

Both mats cover the same rectangular region.

Therefore,

Area of both mats = Same

Number of square patches = Same

#### **Conclusion**

Both mats require **equal number of square patches** because area depends on the surface covered and not on the arrangement.

Answer: **Both mats require the same number of square patches.**

### **Let Us Explore – Q1**

**Tick the shapes with the same area. Find their perimeters.**

Count the shaded squares:

**Shape Area (square units)**

(a) 6

(b) 6

(c) 6

(d) 6

(e) 6

**Shape Area (square units)**

(f) 12

**Shapes having the same area:**

(a), (b), (c), (d), (e)

**Observation:**

All these shapes have the **same area (6 square units)** but their **perimeters are different**.

**Conclusion:**

**Shapes with equal areas may have different perimeters.**

---

**Let Us Explore – Q2**

**Tick the shapes having the same perimeter.**

Count boundary units:

**Shape Perimeter (units)**

(a) 10

(b) 10

(c) 10

(d) 14

(e) 14

**Same Perimeter:**

(a), (b), (c)

(d), (e)

**Areas:**

**Shape Area**

(a) 5 sq units

(b) 5 sq units

## Shape Area

(c) 5 sq units

(d) 7 sq units

(e) 7 sq units

### Observation:

Shapes having the same perimeter can have the same or different arrangements.

---

### Let Us Do – Q1

This is an activity question.

Measure your classroom:

Example:

Length = 8 m

Breadth = 6 m

Area =  $8 \times 6$

= 48 m<sup>2</sup>

Perimeter =  $2(8 + 6)$

= 28 m

---

### Let Us Do – Q2

#### Find Area and Perimeter

Each square = 1 cm × 1 cm

---

(a)

Length = 6 cm

Breadth = 6 cm

Area =  $6 \times 6$

= 36 cm<sup>2</sup>

$$\text{Perimeter} = 2(6 + 6)$$

$$= 24 \text{ cm}$$

$$\text{Area} = 36 \text{ cm}^2$$

$$\text{Perimeter} = 24 \text{ cm}$$

---

**(b)**

$$\text{Length} = 4 \text{ cm}$$

$$\text{Breadth} = 6 \text{ cm}$$

$$\text{Area} = 4 \times 6$$

$$= 24 \text{ cm}^2$$

$$\text{Perimeter} = 2(4 + 6)$$

$$= 20 \text{ cm}$$

$$\text{Area} = 24 \text{ cm}^2$$

$$\text{Perimeter} = 20 \text{ cm}$$

---

**(c)**

$$\text{Length} = 15 \text{ cm}$$

$$\text{Breadth} = 4 \text{ cm}$$

$$\text{Area} = 15 \times 4$$

$$= 60 \text{ cm}^2$$

$$\text{Perimeter} = 2(15 + 4)$$

$$= 38 \text{ cm}$$

$$\text{Area} = 60 \text{ cm}^2$$

$$\text{Perimeter} = 38 \text{ cm}$$

---

**(d)**

$$\text{Length} = 3 \text{ cm}$$

$$\text{Breadth} = 3 \text{ cm}$$

$$\text{Area} = 3 \times 3$$

$$= 9 \text{ cm}^2$$

$$\text{Perimeter} = 4 \times 3$$

$$= 12 \text{ cm}$$

$$\text{Area} = 9 \text{ cm}^2$$

$$\text{Perimeter} = 12 \text{ cm}$$

---

**(e)**

$$\text{Length} = 6 \text{ cm}$$

$$\text{Breadth} = 5 \text{ cm}$$

$$\text{Area} = 6 \times 5$$

$$= 30 \text{ cm}^2$$

$$\text{Perimeter} = 2(6 + 5)$$

$$= 22 \text{ cm}$$

$$\text{Area} = 30 \text{ cm}^2$$

$$\text{Perimeter} = 22 \text{ cm}$$

---

**Let Us Do – Q4**

$$\text{Length} = 42 \text{ m}$$

$$\text{Breadth} = 34 \text{ m}$$

$$\text{Area} = \text{Length} \times \text{Breadth}$$

$$= 42 \times 34$$

$$= 1428 \text{ m}^2$$

$$\text{Answer} = \mathbf{1428 \text{ m}^2}$$

---

**Let Us Do – Q5**

$$\text{Area} = 64 \text{ m}^2$$

$$\text{Length} = 16 \text{ m}$$

$$\text{Breadth} = \text{Area} \div \text{Length}$$

$$= 64 \div 16$$

$$= 4 \text{ m}$$

$$\text{Answer} = 4 \text{ m}$$

## EXAM TIME

### A. Multiple Choice Questions (MCQs)

1. Each side of a square measures 8 cm. Its perimeter is:

$$\text{Perimeter} = 4 \times \text{Side}$$

$$= 4 \times 8$$

$$= 32 \text{ cm}$$

**Answer: 32 cm** (*Correct answer not visible among printed options*)

---

2. Which of the following is not a rectilinear figure?

(a) Square

(b) Cube

(c) Rectangle

(d) Circle

**Answer: (d) Circle**

---

3. It is the length of the circle \_\_\_\_\_.

**Answer: (a) Circumference**

---

4. Side of a square = \_\_\_\_\_  $\times$  (Perimeter of square)

$$\text{Side} = \text{Perimeter} \div 4$$

**Answer: (b) 1/4**

---

### B. Fill in the Blanks

1. The sum of all sides of a closed figure is called its **perimeter**.
  2. The area of a rectangle is given by **Length  $\times$  Breadth**.
  3. All sides of a square are **equal** in length.
  4. The region enclosed by a figure is called its **area**.
  5. The unit of area is always written in **square** units.
  6. The diameter of a circle is **2** times its radius.
  7. Circles having the same centre but different radii are called **concentric** circles.
  8. The perimeter of a rectangle = **2** (Length + Breadth).
- 

### C. Write True or False

<b>Question</b>	<b>Answer</b>
1. All the radii of a circle are equal.	<b>True</b>
2. A square has two equal sides and two unequal sides.	<b>False</b>
3. The area of a figure tells us the length of its boundary.	<b>False</b>
4. The formula for area of square is side $\times$ side.	<b>True</b>
5. A chord of a circle always passes through its centre.	<b>False</b>
6. Diameter is the shortest chord of a circle.	<b>False</b>
7. Area of rectangle = Length + Breadth.	<b>False</b>
8. Circumference of circle = $2\pi r$ .	<b>True</b>

---

### D. Very Short Answer Questions

**1. Find the perimeter of a square with side 12 cm.**

$$\text{Perimeter} = 4 \times \text{side}$$

$$= 4 \times 12$$

$$= 48 \text{ cm}$$

**Answer: 48 cm**

---

**2. A rectangle has length 18 cm and breadth 7 cm. Find its perimeter.**

$$\text{Perimeter} = 2(L + B)$$

$$= 2(18 + 7)$$

$$= 2 \times 25$$

$$= 50 \text{ cm}$$

**Answer: 50 cm**

---

**3. Find the radius of a circle whose diameter is 14 cm.**

$$\text{Radius} = \text{Diameter} \div 2$$

$$= 14 \div 2$$

$$= 7 \text{ cm}$$

**Answer: 7 cm**

---

**4. Find the circumference of a circle with radius 7 cm.**

Formula:

$$\text{Circumference} = 2\pi r$$

$$= 2 \times 22/7 \times 7$$

$$= 44 \text{ cm}$$

**Answer: 44 cm**

---

**5. Each side of an equilateral triangle measures 8 cm.**

$$\text{Perimeter} = 3 \times \text{side}$$

$$= 3 \times 8$$

$$= 24 \text{ cm}$$

**Answer: 24 cm**

---

**6. The perimeter of a square is 64 cm. Find its side.**

$$\text{Side} = \text{Perimeter} \div 4$$

$$= 64 \div 4$$

$$= 16 \text{ cm}$$

**Answer: 16 cm**

---

**7. Area of a rectangle is 120 cm<sup>2</sup> and its length is 15 cm.**

$$\text{Breadth} = \text{Area} \div \text{Length}$$

$$= 120 \div 15$$

$$= 8 \text{ cm}$$

**Answer: 8 cm**

---

**8. Find the area of a triangle having base = 12 cm and height = 8 cm.**

$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$= \frac{1}{2} \times 12 \times 8$$

$$= 48 \text{ cm}^2$$

**Answer: 48 cm<sup>2</sup>**

---

### **E. Short Answer Type Questions**

**1. Find the area and perimeter of a rectangular field of length 20 m and breadth 15 m.**

$$\text{Area} = 20 \times 15$$

$$= 300 \text{ m}^2$$

$$\text{Perimeter} = 2(20 + 15)$$

$$= 70 \text{ m}$$

**Answer: Area = 300 m<sup>2</sup>, Perimeter = 70 m**

---

**2. A square park has an area of 144 m<sup>2</sup>. Find its perimeter.**

$$\text{Side} = \sqrt{144}$$

$$= 12 \text{ m}$$

$$\text{Perimeter} = 4 \times 12$$

$$= 48 \text{ m}$$

**Answer: 48 m**

---

**3. Length is twice the breadth. Perimeter = 36 cm.**

$$\text{Let breadth} = x$$

$$\text{Length} = 2x$$

$$2(2x + x) = 36$$

$$6x = 36$$

$$x = 6 \text{ cm}$$

$$\text{Breadth} = 6 \text{ cm}$$

$$\text{Length} = 12 \text{ cm}$$

**Answer: Length = 12 cm, Breadth = 6 cm**

---

**4. Find circumference and area of a circle whose radius is 10.5 cm.**

Circumference

$$= 2 \times \frac{22}{7} \times 10.5$$

$$= 66 \text{ cm}$$

Area

$$= \frac{22}{7} \times 10.5 \times 10.5$$

$$= 346.5 \text{ cm}^2$$

**Answer: Circumference = 66 cm, Area = 346.5 cm<sup>2</sup>**

---

**5. A rectangular garden is 25 m long and 18 m wide. Find the cost of fencing at ₹40 per metre.**

Perimeter

$$= 2(25 + 18)$$

$$= 86 \text{ m}$$

Cost

$$= 86 \times 40$$

$$= ₹3440$$

**Answer: ₹3440**

---

**6. Rectangular field area = 225 m<sup>2</sup>, breadth = 9 m**

$$\text{Length} = \text{Area} \div \text{Breadth}$$

$$= 225 \div 9$$

$$= 25 \text{ m}$$

Perimeter

$$= 2(25 + 9)$$

$$= 68 \text{ m}$$

**Answer: Length = 25 m, Perimeter = 68 m**

---

**F. Long Answer Type Questions**

**1(a)**

$$\text{Length} = 9 \text{ cm}$$

$$\text{Breadth} = 4 \text{ cm}$$

$$\text{Area} = 9 \times 4$$

$$= \mathbf{36 \text{ cm}^2}$$

---

**1(b)**

$$\text{Length} = 4 \text{ m } 67 \text{ cm}$$

$$= 4.67 \text{ m}$$

$$\text{Breadth} = 8 \text{ m}$$

Area

$$= 4.67 \times 8$$

$$= \mathbf{37.36 \text{ m}^2}$$

---

**1(c)**

$$\text{Length} = 14.5 \text{ cm}$$

$$\text{Breadth} = 9.2 \text{ cm}$$

Area

$$= 14.5 \times 9.2$$

$$= \mathbf{133.4 \text{ cm}^2}$$

---

**1(d)**

$$\text{Length} = 34 \text{ cm}$$

$$\text{Breadth} = 64 \text{ cm}$$

Area

$$= 34 \times 64$$

$$= \mathbf{2176 \text{ cm}^2}$$

---

**2. Area of square cabin = 100 sq ft**

$$\text{Side} = \sqrt{100}$$

$$= 10 \text{ ft}$$

**Answer: 10 ft**

---

**3. Perimeter = 140 m**

$$\text{Two sides} = 40 \text{ m each}$$

Third side

$$= 140 - (40 + 40)$$

= 60 m

**Answer: 60 m**

---

#### **4. Pavement tiled with bricks**

Length = 25 cm

Breadth = 12 cm

Area of one brick

=  $25 \times 12$

=  $300 \text{ cm}^2$

100 bricks area

=  $300 \times 100$

=  $30000 \text{ cm}^2$

=  $3 \text{ m}^2$

**Answer:  $30000 \text{ cm}^2$  (or  $3 \text{ m}^2$ )**

---

#### **Competency-Based Questions**

##### **Assertion–Reason**

**1.**

Assertion: Perimeter of square =  $4 \times \text{side}$  ✓

Reason: All sides of a square are equal ✓

Reason correctly explains Assertion.

**Answer: (a)**

---

**2.**

Assertion: Area of rectangle = Length  $\times$  Breadth ✓

Reason: Rectangle can be divided into equal squares ✓

Reason correctly explains Assertion.

**Answer: (a)**

---

**3.**

Assertion: Circumference =  $\pi \times$  diameter ✓

Reason: Diameter is twice the radius ✓

Reason correctly explains Assertion because

$$\pi \times \text{diameter} = \pi \times 2r = 2\pi r$$

**Answer: (a)**

---

### **Case Study**

Garden length = 25 m

Breadth = 18 m

#### **1. Area**

$$= 25 \times 18$$

$$= 450 \text{ m}^2$$

Answer: **450 m<sup>2</sup>**

---

#### **2. Perimeter**

$$= 2(25 + 18)$$

$$= 86 \text{ m}$$

Answer: **86 m**

---

#### **3. Cost of fencing**

$$= 86 \times 50$$

$$= ₹4300$$

Answer: **₹4300**

---

#### 4. Cost of laying grass

$$= 450 \times 25$$

$$= ₹11,250$$

Answer: **₹11,250**

#### Maths Booster

The words to be found are:

1. AMOUNT
2. AREA
3. BOOK
4. BREADTH
5. CENTIMETER
6. CIRCLE
7. CIRCUMFERENCE
8. CONE
9. CUBE
10. CUBOID
11. CYLINDER
12. DIMENSION
13. EDGE
14. FIGURE
15. HEIGHT
16. INCH
17. LENGTH
18. MENSURATION
19. METER
20. PERIMETER
21. PRISM (already done)

22.RADIUS

23.RECTANGLE

24.RULER

25.SIDE

26.SIZE

27.SPACE

28.SQUARE

29.VOLUME

## Ch-12: Racing Seconds

### Practice Time 12.1

#### 1. Fill in the Boxes

12-Hour Clock	24-Hour Clock
(a) 7:30 p.m.	<b>19:30 hours</b>
(b) 11:00 hours	<b>11:00 a.m.</b>
(c) 10:05 a.m.	<b>10:05 hours</b>
(d) 12:05 p.m.	<b>12:05 hours</b>

---

#### 2. Write each of the following as a.m., p.m., noon or midnight

(a) 06:00 hours

= 6:00 a.m.

(b) 13:00 hours

= 1:00 p.m.

(c) 01:00 hours

= 1:00 a.m.

(d) 02:00 hours

= 2:00 a.m.

(e) 05:00 hours

= 5:00 a.m.

(f) 20:00 hours

= 8:00 p.m.

---

### **3. Convert 12-hour clock into 24-hour clock**

(a) 06:34 a.m.

= 06:34 hours

(b) 11:21 p.m.

= 23:21 hours

(c) 11:59 a.m.

= 11:59 hours

(d) 12:01 a.m.

= 00:01 hours

---

### **4. Convert 24-hour clock into 12-hour clock**

(a) 01:45

= 1:45 a.m.

(b) 13:45

= 1:45 p.m.

(c) 04:20

= 4:20 a.m.

(d) 00:07

= 12:07 a.m.

---

## 5. True or False

(a)

06:30 a.m. = 18:30

False

(b)

12:00 midnight = 00:00

True

(c)

12:00 means 12:00 noon in 12-hour clock

True

(d)

18:06 means 06:06 p.m.

True

---

## Practice Time 12.2

### 1. Convert seconds into minutes

(a) **550 seconds**

$550 \div 60 = 9 \text{ min } 10 \text{ sec}$

Answer: **9 minutes 10 seconds**

---

(b) **360 seconds**

$360 \div 60 = 6$

Answer: **6 minutes**

---

(c) **900 seconds**

$900 \div 60 = 15$

Answer: **15 minutes**

---

**(d) 220 seconds**

$$220 \div 60 = 3 \text{ min } 40 \text{ sec}$$

Answer: **3 minutes 40 seconds**

---

**2. Convert minutes into seconds**

**(a) 37 minutes**

$$37 \times 60$$

$$= 2220 \text{ seconds}$$

Answer: **2220 seconds**

---

**(b) 23 minutes 13 seconds**

$$= (23 \times 60) + 13$$

$$= 1380 + 13$$

$$= 1393 \text{ seconds}$$

Answer: **1393 seconds**

---

**(c) 19 minutes 13 seconds**

$$= (19 \times 60) + 13$$

$$= 1140 + 13$$

$$= 1153 \text{ seconds}$$

Answer: **1153 seconds**

---

**(d) 14 minutes 14 seconds**

$$= (14 \times 60) + 14$$

$$= 840 + 14$$

= 854 seconds

Answer: **854 seconds**

---

### **3. Convert minutes into hours**

**(a) 620 minutes**

$$620 \div 60$$

= 10 hours 20 minutes

Answer: **10 h 20 min**

---

**(b) 923 minutes**

$$923 \div 60$$

= 15 hours 23 minutes

Answer: **15 h 23 min**

---

**(c) 200 minutes**

$$200 \div 60$$

= 3 hours 20 minutes

Answer: **3 h 20 min**

---

**(d) 720 minutes**

$$720 \div 60$$

= 12 hours

Answer: **12 hours**

---

### **4. Convert hours into minutes**

**(a) 11 hours**

$$11 \times 60$$

= 660 minutes

Answer: **660 minutes**

---

**(b) 12 hours 23 minutes**

=  $(12 \times 60) + 23$

=  $720 + 23$

= 743 minutes

Answer: **743 minutes**

---

**(c) 16 hours 29 minutes**

=  $(16 \times 60) + 29$

=  $960 + 29$

= 989 minutes

Answer: **989 minutes**

---

**(d) 17 hours**

$17 \times 60$

= 1020 minutes

Answer: **1020 minutes**

---

### **Practice Time 12.3**

**1. Clock shows 3:30 p.m. What time after 4 h 30 min?**

3:30 p.m. + 4 h 30 min

= 8:00 p.m.

Answer: **8:00 p.m.**

---

**2. Ritesh played football**

Start = 4:30 p.m.

End = 7:15 p.m.

Time played

= 2 h 45 min

**Answer: 2 hours 45 minutes**

---

### **3. Aarav watched a movie**

Start = 6:45 p.m.

End = 9:10 p.m.

Time watched

= 2 h 25 min

**Answer: 2 hours 25 minutes**

---

### **4. Neha did homework**

Start = 3:20 p.m.

End = 5:05 p.m.

Time taken

= 1 h 45 min

**Answer: 1 hour 45 minutes**

---

### **5. Kabir went swimming**

Start = 8:15 a.m.

End = 10:00 a.m.

Time spent

= 1 h 45 min

**Answer: 1 hour 45 minutes**

---

## Practice Time 12.4

### 1. Add the following

(a)

6 weeks 4 days

+ 7 weeks 6 days

= 13 weeks 10 days

= 14 weeks 3 days

Answer: **14 weeks 3 days**

---

(b)

5 years 11 months

+ 9 years 8 months

= 14 years 19 months

= 15 years 7 months

Answer: **15 years 7 months**

---

### 2. Subtract the following

(a)

10 weeks 5 days

– 8 weeks 2 days

= 2 weeks 3 days

Answer: **2 weeks 3 days**

---

(b)

44 years 6 months

– 32 years 8 months

Borrow 1 year = 12 months

43 years 18 months

– 32 years 8 months

= 11 years 10 months

**Answer: 11 years 10 months**

---

### **3. Days from 11 March to 22 March**

22 – 11

= 11 days

**Answer: 11 days**

---

### **4. Summer vacation**

Start = 4 May

Re-open = 1 July

May: 28 days (5 May–31 May)

June: 30 days

Total = 58 days

**Answer: 58 days**

---

### **5. Library book returned after 11 days**

Issued = 12 September

Return date = 23 September

**Answer: 23 September**

---

### **6. Gaurav joined office on 19 October and left after 120 days**

19 Oct → 31 Oct = 12 days

November = 30 days

December = 31 days

January = 31 days

Total = 104 days

Remaining = 16 days

16 days into February

= **16 February**

Answer: **16 February**

---

## **7. Short form of 9th February 2008**

**09-02-2008**

Long form of 19.6.1889

**19 June 1889**

## **NCERT CORNER**

### **1. Yoga Practice**

From the clocks shown:

- Start Time = **6:00 a.m.**
- Finish Time = **6:30 a.m.**

**Time spent practising Yoga**

= 6:30 a.m. – 6:00 a.m.

= **30 minutes**

---

### **2. Find the time elapsed**

**(a) 01:15 p.m. to 01:42 p.m.**

$42 - 15 = 27$

Answer = **27 minutes**

---

**(b) 03:18 p.m. to 08:18 p.m.**

8:18 – 3:18

= **5 hours**

---

**(c) 09:15 a.m. to 11:30 a.m.**

9:15 a.m. → 11:15 a.m. = 2 hours

11:15 a.m. → 11:30 a.m. = 15 minutes

**Answer = 2 hours 15 minutes**

---

### **3. Time Taken to Paint a Picture**

<b>Name</b>	<b>Time Taken</b>
-------------	-------------------

Raghav	1 hr 20 min
--------	-------------

Rani	2 hr 10 min
------	-------------

Ritu	1 hr 35 min
------	-------------

**(a) Who took the longest time?**

**Rani (2 hr 10 min)**

**(b) Who took the least time?**

**Raghav (1 hr 20 min)**

---

### **4. Fill in the blanks**

<b>Time in 12-hour format</b>	<b>Time in 24-hour format</b>
-------------------------------	-------------------------------

05:30 a.m.	05:30 hours
------------	-------------

<b>08:35 a.m.</b>	08:35 hours
-------------------	-------------

11:35 a.m.	<b>11:35 hours</b>
------------	--------------------

02:30 p.m.	14:30 hours
------------	-------------

05:30 p.m.	<b>17:30 hours</b>
------------	--------------------

09:35 p.m.	<b>21:35 hours</b>
------------	--------------------

---

## Let Us Do

### 1. Estimate seconds or minutes

Activity	Answer
Blinking of eyes	✓ Seconds
Switching on and off lights	✓ Seconds
Counting from 1–20	✓ Seconds
Filling a glass from the tap	✓ Seconds
Melting of an ice cube	✓ Minutes
Making a phone call	✓ Minutes
Sitting down on the floor	✓ Seconds
Drinking a glass of water	✓ Seconds
Snapping fingers	✓ Seconds
Washing hands	✓ Seconds

---

### 2. Activities that take less than a minute

Examples:

- Opening a door
- Clapping hands
- Jumping once
- Wearing spectacles
- Picking up a pencil

---

## Let Us Find

### 1. Number of skips in 10 seconds

**Activity based – answers may vary**

Example: **20 skips**

---

**2. Time to write FRIEND**

Example: **8 seconds**

---

**3. Time to run 100 m**

Example: **20 seconds**

---

**Let Us Do (Clock Questions)**

**1. Rani took \_\_\_\_ sec to get out of bed.**

Clock difference = **20 seconds**

**2. Raghav took \_\_\_\_ sec to move from his room to kitchen.**

Clock difference = **60 seconds**

**3. Ritu took \_\_\_\_ sec to pick up a piece of paper.**

Clock difference = **40 seconds**

**4. Raghu took \_\_\_\_ sec to wash his spoon and plate.**

Clock difference = **30 seconds**

---

**Draw the Missing Second Hand**

**1. Raghu took 20 sec to read a sentence.**

Difference = **20 seconds**

**2. Rani took 30 sec to colour a rectangle.**

Difference = **30 seconds**

**3. Raghav took 60 sec to move from home to garden.**

Difference = **60 seconds**

**4. Ritu took 40 sec to wash a plate.**

Difference = **40 seconds**

---

### Word Problems

1.

Raghav studied:

- Mathematics = 50 minutes
- English = 45 minutes
- Hindi = 35 minutes
- The World Around Us = 30 minutes

Total

$$= 50 + 45 + 35 + 30$$

$$= 160 \text{ minutes}$$

$$= \mathbf{2 \text{ hours } 40 \text{ minutes}}$$

---

2.

Start = 08:00 hours

Arrival = 09:05 hours

Time taken

$$= \mathbf{1 \text{ hour } 5 \text{ minutes}}$$

---

3.

Jyoti went at 06:15 p.m.

Returned after 1 hr 45 min

$$06:15 + 1:45$$

$$= \mathbf{08:00 \text{ p.m.}}$$

---

4.

Ragini finished homework at 09:40 p.m.

Time taken = 1 hr 10 min

Start time

09:40 – 1:10

= **08:30 p.m.**

---

**5.**

Children left at 08:30 a.m.

Returned after 4 hr 10 min

08:30 + 4:10

= **12:40 p.m.**

---

**6.**

Raji started homework at 06:00 p.m.

Finished in 1 hr 30 min

06:00 + 1:30

= **07:30 p.m.**

---

**7.**

Alya went out at 05:30 p.m.

Returned after 1 hr 10 min

05:30 + 1:10

= **06:40 p.m.**

---

**8.**

Lunch break starts = 12:30 p.m.

Duration = 35 min

12:30 + 35 min

= **01:05 p.m.**

---

**9.**

Current time = 08:35 p.m.

After 8 hr 25 min

08:35 p.m. + 8 hr = 04:35 a.m.

04:35 a.m. + 25 min = 05:00 a.m.

**Answer = 05:00 a.m. (next day)**

### **EXAM TIME**

#### **A. Multiple Choice Questions (MCQs)**

**1. 2 days = \_\_\_\_\_ hours**

$2 \times 24 = 48$  hours

**Answer: (d) 48**

---

**2. 6:00 p.m. in 24-hour clock format is**

$6 + 12 = 18$

**Answer: (c) 18:00**

---

**3. 1 hour = \_\_\_\_\_ minutes**

**Answer: (c) 60**

---

**4. 900 seconds = \_\_\_\_\_ minutes**

$900 \div 60 = 15$

**Answer: (c) 15**

---

**5. 12 midnight in 24-hour format is**

**Answer: (a) 00:00**

---

**B. Fill in the Blanks**

**1. 2 h 55 min = \_\_\_\_\_ min**

$$= (2 \times 60) + 55$$

$$= 120 + 55$$

$$= \mathbf{175 \text{ min}}$$

---

**2. 2 years 8 months + 3 years 11 months**

$$= 5 \text{ years } 19 \text{ months}$$

$$= 6 \text{ years } 7 \text{ months}$$

**Answer: 6 years 7 months**

---

**3. 2 h 40 min + 6 h 30 min**

$$= 8 \text{ h } 70 \text{ min}$$

$$= 9 \text{ h } 10 \text{ min}$$

**Answer: 9 h 10 min**

---

**4. 550 min = \_\_\_\_\_ h \_\_\_\_\_ min**

$$550 \div 60$$

$$= 9 \text{ h } 10 \text{ min}$$

**Answer: 9 h 10 min**

---

**C. Write True or False**

**1.**

12:00 midnight is written as 00:00 hours in the 24-hour clock.

**True**

---

2.

1 hour = 100 minutes

**False**

---

3.

To convert 5:00 p.m. into 24-hour format, we subtract 12 hours.

**False**

---

4.

There are 60 seconds in 1 minute.

**True**

---

5.

6:15 a.m. in 24-hour clock is written as 18:15 hours.

**False**

---

#### **D. Very Short Answer Questions**

**1. How many weeks are there in 28 days?**

$$28 \div 7 = 4$$

**Answer: 4 weeks**

---

**2. Convert 7:00 a.m. to 24-hour clock time.**

**Answer: 07:00 hours**

---

**3. If today is Monday, what day will it be after 10 days?**

$$10 \div 7 = 1 \text{ week } 3 \text{ days}$$

Monday + 3 days

= Thursday

**Answer: Thursday**

---

**4. What does a.m. stand for?**

**Answer: Ante Meridiem (Before Noon)**

---

**5. What does p.m. stand for?**

**Answer: Post Meridiem (After Noon)**

---

### **E. Short Answer Questions**

**1. A train departs at 8:40 a.m. and arrives at 2:10 p.m.**

8:40 a.m. → 12:40 p.m. = 4 hours

12:40 p.m. → 2:10 p.m. = 1 hour 30 minutes

Total = 5 hours 30 minutes

**Answer: 5 hours 30 minutes**

---

**2. Convert 720 minutes into hours.**

$720 \div 60$

= 12

**Answer: 12 hours**

---

**3. Convert 4 days into hours.**

$4 \times 24$

= 96

**Answer: 96 hours**

---

**4. How many minutes are there in 480 seconds?**

$$480 \div 60$$

$$= 8$$

**Answer: 8 minutes**

---

**5. How many hours are there in 90 minutes?**

$$90 \div 60$$

$$= 1 \text{ hour } 30 \text{ minutes}$$

**Answer: 1 hour 30 minutes**

---

**F. Long Answer Questions**

**1(a) Convert 15 hours 24 minutes into minutes**

$$15 \times 60 = 900$$

$$900 + 24 = 924$$

**Answer: 924 minutes**

---

**1(b) Convert 7 months 3 weeks into days**

$$7 \text{ months} = 7 \times 30 = 210 \text{ days}$$

$$3 \text{ weeks} = 21 \text{ days}$$

$$210 + 21 = 231 \text{ days}$$

**Answer: 231 days**

---

**1(c) Convert 2 years 7 months into months**

$$2 \text{ years} = 24 \text{ months}$$

$$24 + 7 = 31$$

**Answer: 31 months**

---

**1(d) Convert 2 months 4 days into days**

2 months = 60 days

$60 + 4 = 64$  days

**Answer: 64 days**

---

**2(a) Calculate duration**

12:55 a.m. to 01:34 p.m.

12:55 a.m. → 12:55 p.m. = 12 hours

12:55 p.m. → 01:34 p.m. = 39 minutes

**Answer: 12 hours 39 minutes**

---

**2(b)**

11:24 p.m. → 12:00 midnight = 36 min

12:00 → 06:55 a.m. = 6 h 55 min

Total = 7 h 31 min

**Answer: 7 hours 31 minutes**

---

**2(c)**

10:45 a.m. → 11:25 a.m.

= 40 minutes

**Answer: 40 minutes**

---

**2(d)**

6:10 a.m. → 4:15 p.m.

= 10 hours 5 minutes

**Answer: 10 hours 5 minutes**

---

**3. Anjali started writing at 07:00 a.m. and finished at 5:12 p.m.**

07:00 a.m. → 12:00 noon = 5 hours

12:00 noon → 5:12 p.m. = 5 h 12 min

Total = 10 h 12 min

**Answer: 10 hours 12 minutes**

---

**4. Nisha started baking at 12:44 p.m. and stopped at 08:12 p.m.**

12:44 p.m. → 07:44 p.m. = 7 hours

07:44 p.m. → 08:12 p.m. = 28 minutes

Total = 7 h 28 min

**Answer: 7 hours 28 minutes**

---

### **Competency-Based Questions**

#### **Assertion–Reason**

**1.**

Assertion: 00:45 hours = 12:45 a.m. ✓

Reason: Time between 00:00 and 00:59 is written as 12:00 a.m. plus minutes ✓

**Answer: (a)** Both A and R are true and R is the correct explanation of A.

---

**2.**

Assertion: 5:30 p.m. = 17:30 ✓

Reason: To convert any p.m. time to 24-hour time, add 12 hours ✓ (except 12 p.m.)

**Answer: (a)**

---

**3.**

Assertion: 1 hour 45 minutes = 105 minutes ✓

Reason: To convert hours into minutes, we divide by 60 **X**

**Answer: (c)** A is true but R is false.

---

### **Case Study Based Questions**

**1. Convert principal's speech time 13:15 hours into 12-hour format.**

13:15 – 12:00

= 1:15 p.m.

**Answer: 1:15 p.m.**

---

**2. Gap between parade and first race**

Parade = 08:45 a.m.

Race = 09:30 a.m.

Difference = 45 minutes

**Answer: 45 minutes**

---

**3. Convert closing ceremony time 15:45 hours into 12-hour format.**

15:45 – 12:00

= 3:45 p.m.

**Answer: 3:45 p.m.**

---

**4. Time between reporting time and principal's speech**

Reporting = 07:15 a.m.

Speech = 01:15 p.m.

Difference = 6 hours

**Answer: 6 hours**

maths booster

**Maths Booster – Solutions**

## 1. Fill in the clocks

### Row 1 (Example)

Time shown = **8:00 p.m.**

8:00 p.m. + 11 hours

= **7:00 a.m. (next day)**

---

### Row 2

Clock shows **9:00 a.m.**

To convert into p.m., add 12 hours.

9:00 a.m. + 12 hours

= **9:00 p.m.**

**Answer: 9:00 p.m.**

---

### Row 3

Clock shows **10:15 a.m.**

10:15 a.m. + 12 hours 15 minutes

= 10:15 p.m. + 15 minutes

= **10:30 p.m.**

**Answer: 10:30 p.m.**

---

### Row 4

Result clock shows **6:30 p.m.**

Time added = 9 hours 11 minutes

Starting time

6:30 p.m. - 9:11

= **9:19 a.m.**

**Answer: 9:19 a.m.**

---

**Row 5**

Clock shows **7:48 a.m.**

7:48 a.m. + 5 hours 12 minutes

= **1:00 p.m.**

**Answer: 1:00 p.m.**

**Ch – 13: Animal Jumps****Practice Time 13.1**

**Q2(a) Find the LCM of 40 and 32 by Prime Factorisation**

**Solution**

$$\begin{aligned}40 &= 2 \times 2 \times 2 \times 5 \\ &= 2^3 \times 5\end{aligned}$$

$$\begin{aligned}32 &= 2 \times 2 \times 2 \times 2 \times 2 \\ &= 2^5\end{aligned}$$

LCM = Product of highest powers of all prime factors

$$= 2^5 \times 5$$

$$= 32 \times 5$$

$$= \mathbf{160}$$

**Answer**

$$\mathbf{LCM = 160}$$

---

**Q2(b) Find the LCM of 20 and 28**

**Solution**

$$20 = 2^2 \times 5$$

$$28 = 2^2 \times 7$$

$$\text{LCM} = 2^2 \times 5 \times 7$$

$$= 4 \times 5 \times 7$$

$$= 140$$

**Answer**

$$\text{LCM} = 140$$

---

**Q3(c) Find the LCM of 11, 24 and 33**

**Solution**

$$11 = 11$$

$$24 = 2 \times 2 \times 2 \times 3$$

$$33 = 3 \times 11$$

$$\text{LCM} = 2^3 \times 3 \times 11$$

$$= 8 \times 3 \times 11$$

$$= 264$$

**Answer**

$$\text{LCM} = 264$$

---

**Practice Time 13.3**

**Q4 Three drums contain 108 L, 144 L and 180 L kerosene. Find the largest measure.**

**Solution**

Find HCF of 108, 144 and 180.

$$108 = 2^2 \times 3^3$$

$$144 = 2^4 \times 3^2$$

$$180 = 2^2 \times 3^2 \times 5$$

Common factors:

$$2^2 \times 3^2$$

$$= 4 \times 9$$

$$= 36$$

**Answer**

**Largest measure = 36 litres**

---

**Q5 Julia has cloth pieces 72 inches and 120 inches wide.**

**Solution**

Find HCF of 72 and 120.

$$72 = 2^3 \times 3^2$$

$$120 = 2^3 \times 3 \times 5$$

Common factors

$$= 2^3 \times 3$$

$$= 8 \times 3$$

$$= 24$$

**Answer**

**Width of each strip = 24 inches**

---

**Practice Time 13.4**

**Q2 LCM = 225 and HCF = 5. One number = 15.**

**Solution**

Product of two numbers

$$= \text{LCM} \times \text{HCF}$$

$$= 225 \times 5$$

$$= 1125$$

Other number

$$= 1125 \div 15$$

$$= 75$$

**Answer**

**Other number = 75**

---

**Q3 Greatest number that divides 133 and 78 leaving remainder 3.**

**Solution**

$$133 - 3 = 130$$

$$78 - 3 = 75$$

Required number = HCF of 130 and 75

$$130 = 2 \times 5 \times 13$$

$$75 = 3 \times 5 \times 5$$

Common factor = 5

**Answer**

**Required number = 5**

---

**Practice Time 13.5**

**Q1(a) Prime Factorisation of 84**

**Solution**

$$84 \div 2 = 42$$

$$42 \div 2 = 21$$

$$21 \div 3 = 7$$

$$7 \div 7 = 1$$

Therefore,

$$84 = 2 \times 2 \times 3 \times 7$$

**Answer**

$$84 = 2 \times 2 \times 3 \times 7$$

---

**Q1(d) Prime Factorisation of 120**

**Solution**

$$120 \div 2 = 60$$

$$60 \div 2 = 30$$

$$30 \div 2 = 15$$

$$15 \div 3 = 5$$

$$5 \div 5 = 1$$

Therefore,

$$120 = 2 \times 2 \times 2 \times 3 \times 5$$

**Answer**

$$120 = 2^3 \times 3 \times 5$$

---

### **Q3(a) Complete Factor Tree of 54**

**Solution**

$$54$$

$$= 2 \times 27$$

$$27 = 3 \times 9$$

$$9 = 3 \times 3$$

Prime factors

$$54 = 2 \times 3 \times 3 \times 3$$

**Answer**

$$2 \times 3 \times 3 \times 3 = 54$$

---

### **Q3(b) Complete Factor Tree of 88**

**Solution**

$$88$$

$$= 2 \times 44$$

$$44 = 4 \times 11$$

$$4 = 2 \times 2$$

Prime factors

$$88 = 2 \times 2 \times 2 \times 11$$

**Answer**

$$2 \times 2 \times 2 \times 11 = 88$$

---

**Q3(c) Complete Factor Tree of 126**

**Solution**

$$126$$

$$= 2 \times 63$$

$$63 = 9 \times 7$$

$$9 = 3 \times 3$$

Prime factors

$$126 = 2 \times 3 \times 3 \times 7$$

**Answer**

$$2 \times 3 \times 3 \times 7 = 126$$

---

**Practice Time 13.6**

**Q4 Word Problem**

Sunita used 53 instead of 35.

Difference

$$53 - 35 = 18$$

Increase in product = 540

Other number

$$= 540 \div 18$$

$$= 30$$

Correct numbers

35 and 30

Correct product

$$35 \times 30$$

$$= 1050$$

Wrong product

$$53 \times 30$$

$$= 1590$$

**Answer**

Correct co-prime numbers = **35 and 30**

Correct product = **1050**

Wrong product = **1590**

**NCERT Corner**

**Q1. Make different arrays and identify factors**

**(a) 10**

- Arrays:  $1 \times 10, 2 \times 5$
- Factors: **1, 2, 5, 10**

**(b) 14**

- Arrays:  $1 \times 14, 2 \times 7$
- Factors: **1, 2, 7, 14**

**(c) 13**

- Arrays:  $1 \times 13$
- Factors: **1, 13**

**(d) 20**

- Arrays:  $1 \times 20, 2 \times 10, 4 \times 5$
- Factors: **1, 2, 4, 5, 10, 20**

**(e) 25**

- Arrays:  $1 \times 25, 5 \times 5$
- Factors: **1, 5, 25**

**(f) 32**

- Arrays:  $1 \times 32, 2 \times 16, 4 \times 8$

- Factors: **1, 2, 4, 8, 16, 32**

**(g) 37**

- Arrays:  $1 \times 37$
- Factors: **1, 37**

**(h) 46**

- Arrays:  $1 \times 46, 2 \times 23$
- Factors: **1, 2, 23, 46**

**(i) 54**

- Arrays:  $1 \times 54, 2 \times 27, 3 \times 18, 6 \times 9$
- Factors: **1, 2, 3, 6, 9, 18, 27, 54**

**Why are 13 and 37 prime numbers?**

Because they have only two factors: **1 and the number itself.**

---

**Q2. Find 5 common multiples**

**(a) 2 and 3**

Common multiples: **6, 12, 18, 24, 30**

**(b) 5 and 8**

Common multiples: **40, 80, 120, 160, 200**

**(c) 2 and 4**

Common multiples: **4, 8, 12, 16, 20**

**(d) 3 and 9**

Common multiples: **9, 18, 27, 36, 45**

**(e) 5 and 10**

Common multiples: **10, 20, 30, 40, 50**

**(f) 9 and 12**

Common multiples: **36, 72, 108, 144, 180**

**(g) 8 and 12**

Common multiples: **24, 48, 72, 96, 120**

**(h) 6 and 8**

Common multiples: **24, 48, 72, 96, 120**

---

### Q3. Rabbit and Deer

Rabbit jumps = 4 steps

Multiples of 4:

0, 4, 8, 12, 16, 20, 24, 28, 32, 36...

Deer jumps = 6 steps

Multiples of 6:

0, 6, 12, 18, 24, 30, 36...

Common positions:

**12, 24, 36**

Food is at **36**

**Answer:** Yes, both will reach the food. They will reach together at **36**.

---

### Q4. Common factors of 24 and 36

Factors of 24:

1, 2, 3, 4, 6, 8, 12, 24

Factors of 36:

1, 2, 3, 4, 6, 9, 12, 18, 36

Common factors:

**1, 2, 3, 4, 6, 12**

(a) Yes, 2 is a common factor.

(b) Yes, 3 is a common factor.

(c) Yes, 4 is a common factor.

(d) Other jumps:

**1, 6, 12**

(e) Number of common factors:

**6**

Common factors:

**1, 2, 3, 4, 6, 12**

(f) Yes, 1 is also a common factor.

---

**Q5. Common factors of 12 and 13**

Factors of 12:

1, 2, 3, 4, 6, 12

Factors of 13:

1, 13

Common factor:

**1**

---

**Q6. Numbers reached by jumps of 4**

Given numbers:

0, 10, 16, 27, 36, 48

Multiples of 4:

0, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48...

Reached:

**16, 36, 48**

---

**Q7. Common factors**

(a) 12 and 16 → **1, 2, 4**

(b) 8 and 12 → **1, 2, 4**

(c) 4 and 16 → **1, 2, 4**

(d) 2 and 9 → **1**

(e) 3 and 5 → **1**

(f) 12 and 15 → **1, 3**

(g) 20 and 5 → **1, 5**

(h) 9 and 21 → **1, 3**

**Q7. What do you notice about the common factors of different pairs of numbers?**

**Answer:**

Common factors are the factors that divide both numbers exactly. Some pairs

have many common factors, while some pairs have only **1** as a common factor. If only 1 is common, the numbers are called **co-prime numbers**.

---

### **Q8. Sher Khan and Bagheera**

Sher Khan hunts every **3rd day**.

Multiples of 3:

3, 6, 9, 12, 15, 18, 21, 24, 27, 30...

Bagheera hunts every **5th day**.

Multiples of 5:

5, 10, 15, 20, 25, 30...

Common multiples:

**15, 30, 45, 60...**

**Answer:**

They will hunt together on the:

- 15th day
- 30th day
- 45th day
- 60th day

The first day they hunt together is the **15th day**.

---

### **Q9 (a)**

Sher Khan's house = **25**

Baloo's house = **30**

Mowgli wants to meet Baloo but avoid Sher Khan.

We need a jump length that reaches **30** but not **25**.

Factors of 30:

1, 2, 3, 5, 6, 10, 15, 30

Factors of 25:

1, 5, 25

Common factors:

1, 5

Choose a factor of 30 that is **not** a factor of 25.

Possible jump lengths:

**2, 3, 6, 10, 15, 30**

**Answer:**

Mowgli can choose jumps of **2, 3, 6, 10, 15 or 30 steps**.

---

**Q9 (b)**

Kaa's house = **21**

Akela's house = **35**

We need a jump length that reaches both houses.

Factors of 21:

1, 3, 7, 21

Factors of 35:

1, 5, 7, 35

Common factors:

**1 and 7**

**Answer:**

The number of jumps can be:

**1 step or 7 steps**

(Usually the expected answer is **7 steps**, the greatest common factor.)

---

**EXAM TIME**

**A. Multiple Choice Questions (MCQs)**

**1.**

HCF of two consecutive even numbers is:

**Answer: (a) 2**

**2.**

LCM of 36 and 12 is:

**Answer: (c) 36**

**3.**

HCF of two prime numbers is:

**Answer: (b) 1**

**4.**

The only common factor of all co-prime numbers is:

**Answer: (b) 1**

---

### **B. Fill in the Blanks**

**1.**

A number has two distinct factors. They are **1** and the number itself.

**2.**

The numbers are said to be **co-prime** to each other.

**3.**

HCF of two numbers is always **smaller** than the LCM.

**4.**

The HCF of two numbers is always **less** than the LCM.

---

### **C. Very Short Answer Questions**

**1.**

Any two factors of 36:

**Answer: 4 and 9**

**2.**

Smallest multiple of 9:

**Answer: 9**

**3.**

LCM of 3 and 6:

**Answer:** 6

**4.**

Check whether 48 is divisible by 3.

Sum of digits =  $4 + 8 = 12$

12 is divisible by 3.

**Answer:** Yes, 48 is divisible by 3.

**5.**

HCF of 14 and 21

Factors of 14 = 1, 2, 7, 14

Factors of 21 = 1, 3, 7, 21

Common factors = 1, 7

**HCF = 7**

---

## **D. Short Answer Questions**

### **1. Find the LCM of 4, 6 and 8**

Multiples of 4:

4, 8, 12, 16, 20, 24...

Multiples of 6:

6, 12, 18, 24...

Multiples of 8:

8, 16, 24...

**LCM = 24**

---

### **2. Is 5346 divisible by 9?**

Sum of digits:

$5 + 3 + 4 + 6 = 18$

18 is divisible by 9.

**Answer:** Yes, 5346 is divisible by 9.

---

### **3. HCF of 18 and 27**

$$18 = 2 \times 3 \times 3$$

$$27 = 3 \times 3 \times 3$$

$$\text{Common factors} = 3 \times 3$$

$$\text{HCF} = 9$$

---

### **4. First five multiples of 7**

7, 14, 21, 28, 35

---

### **5. Prime factorisation of 72**

$$72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$\text{Answer: } 72 = 2^3 \times 3^2$$

---

## **E. Long Answer Type Questions**

### **1. Find the LCM and HCF using Prime Factorisation Method**

**(a) 60 and 45**

#### **Prime Factorisation**

$$60 = 2 \times 2 \times 3 \times 5$$

$$45 = 3 \times 3 \times 5$$

#### **HCF**

= Common prime factors

$$= 3 \times 5$$

$$= 15$$

#### **LCM**

= Product of highest powers of all prime factors

$$= 2 \times 2 \times 3 \times 3 \times 5$$
$$= \mathbf{180}$$

**Answer:**

$$\mathbf{HCF = 15, LCM = 180}$$

---

**(b) 28, 56 and 70**

$$28 = 2 \times 2 \times 7$$

$$56 = 2 \times 2 \times 2 \times 7$$

$$70 = 2 \times 5 \times 7$$

**HCF**

$$= 2 \times 7$$

$$= \mathbf{14}$$

**LCM**

$$= 2^3 \times 5 \times 7$$

$$= 8 \times 5 \times 7$$

$$= \mathbf{280}$$

**Answer:**

$$\mathbf{HCF = 14, LCM = 280}$$

---

**2. Find the LCM and HCF using Division Method**

**(a) 48 and 144**

$$\text{Since } 144 \div 48 = 3$$

$$\mathbf{HCF = 48}$$

$$\mathbf{LCM = (48 \times 144) \div 48}$$

$$= 144$$

**Answer:**

$$\mathbf{HCF = 48, LCM = 144}$$

---

**(b) 42, 70 and 112**

Prime factors:

$$42 = 2 \times 3 \times 7$$

$$70 = 2 \times 5 \times 7$$

$$112 = 2^4 \times 7$$

**HCF**

$$= 2 \times 7$$

$$= \mathbf{14}$$

**LCM**

$$= 2^4 \times 3 \times 5 \times 7$$

$$= 16 \times 105$$

$$= \mathbf{1680}$$

**Answer:**

$$\mathbf{HCF = 14, LCM = 1680}$$

---

**3. What least number when divided by 20, 36 and 48 leaves remainder 3 in each case?**

$$\text{Required Number} = \text{LCM}(20, 36, 48) + 3$$

$$20 = 2^2 \times 5$$

$$36 = 2^2 \times 3^2$$

$$48 = 2^4 \times 3$$

$$\text{LCM} = 2^4 \times 3^2 \times 5$$

$$= 16 \times 9 \times 5$$

$$= 720$$

$$\text{Required Number}$$

$$= 720 + 3$$

$$= \mathbf{723}$$

**Answer:**

$$\mathbf{723}$$

---

#### 4. Carpenter Problem

Lengths of wooden blocks:

36 cm, 54 cm, 81 cm

Largest possible equal length = HCF

$$36 = 2^2 \times 3^2$$

$$54 = 2 \times 3^3$$

$$81 = 3^4$$

$$\text{HCF} = 3^2$$

$$= \mathbf{9 \text{ cm}}$$

**Answer:**

**Largest plank length = 9 cm**

---

#### 5. LCM of two numbers = 462

$$\text{Product} = 3234$$

We know:

$$\text{LCM} \times \text{HCF} = \text{Product of numbers}$$

$$462 \times \text{HCF} = 3234$$

$$\text{HCF} = 3234 \div 462$$

$$\text{HCF} = 7$$

**Answer:**

$$\mathbf{\text{HCF} = 7}$$

---

**6. LCM and HCF of two numbers are 567 and 9 respectively. One number is 63. Find the other number.**

Using:

$$\text{Product of numbers} = \text{LCM} \times \text{HCF}$$

$$63 \times \text{Other Number}$$

$$= 567 \times 9$$

$$= 5103$$

Other Number

$$= 5103 \div 63$$

$$= \mathbf{81}$$

**Answer:**

**Other Number = 81**

---

## COMPETENCY-BASED QUESTIONS

### A. Assertion–Reason Questions

1.

Assertion (A):

LCM of 3 and 9 is 9.

✓ True

Reason (R):

When one number is a multiple of the other, the LCM is the greater number itself.

✓ True

**Answer:**

**(a) Both A and R are true and R is the correct explanation of A.**

---

2.

Assertion (A):

If a number ends in 0, it is divisible by 5 and 10.

✓ True

Reason (R):

A number is divisible by 10 if its last digit is 0.

✓ True

**Answer:**

**(b) Both A and R are true but R is not the complete explanation of A.**

---

3.

Assertion (A):

HCF of co-prime numbers is always 1.

✓ True

Reason (R):

Co-prime numbers have no common factor except 1.

✓ True

**Answer:**

**(a) Both A and R are true and R is the correct explanation of A.**

---

## **B. Case Study Based Question**

**Given**

Kangaroo jumps every 6 m

Rabbit jumps every 8 m

Deer jumps every 12 m

---

**(a) First five multiples**

**Multiples of 6**

6, 12, 18, 24, 30

**Multiples of 8**

8, 16, 24, 32, 40

**Multiples of 12**

12, 24, 36, 48, 60

---

**(b) Smallest common multiple**

Common multiple = **24**

**Answer:**

**24**

---

**(c) LCM of 6, 8 and 12**

$$6 = 2 \times 3$$

$$8 = 2^3$$

$$12 = 2^2 \times 3$$

$$\text{LCM} = 2^3 \times 3$$

$$= 8 \times 3$$

$$= \mathbf{24}$$

**Answer:**

$$\text{LCM} = \mathbf{24}$$

---

**(d) After how many metres will all three animals land together?**

They will land together after **24 metres**.

**Answer:**

**24 metres**

---

**Maths Booster**

Numbers in clue box:

2, 3, 3, 4, 5, 5, 6, 6, 7, 8, 8, 10

Find pairs:

**16**

$$2 \times 8 = 16$$

**35**

$$5 \times 7 = 35$$

**24**

$$3 \times 8 = 24$$

48

$$6 \times 8 = 48$$

**Answer Table**

Number	Pair
16	$2 \times 8$
35	$5 \times 7$
24	$3 \times 8$
48	$6 \times 8$

**Ch-14: Maps and Locations**

**Practice Time 14.1**

From the picture:

- Airport → North-West
- Park → North
- Library → North-East
- Mall → East
- Railway Station → South-East
- Bus Stop → South
- Hospital → South-West
- Sports Club → West

---

**(a) In which direction will Annu turn to face the railway station?**

Railway Station is towards the **South-East**.

**Answer:** South-East

---

**(b) What is the direction of the airport?**

Airport is towards the **North-West**.

**Answer:** North-West

---

**(c) In the North lies the \_\_\_\_\_.**

Park is exactly in the North direction.

**Answer:** Park

---

**(d) The mall is in the \_\_\_\_\_ direction.**

Mall is towards the East.

**Answer:** East

---

**2.**

**(a) Which state is to the North of Haryana?**

Looking at the map, **Himachal Pradesh** is situated to the north of Haryana.

**Answer:** Himachal Pradesh

---

**(b) In which direction is Rajasthan located in relation to Uttar Pradesh?**

Rajasthan lies on the **West** side of Uttar Pradesh.

**Answer:** West

---

**(c) In which direction are you travelling if you are travelling from Lucknow to Gorakhpur?**

Gorakhpur is towards the **East** of Lucknow.

**Answer:** East

---

## **Practice Time 14.2**

**1. How far is his home from the police station?**

Given Scale:

**1 cm on map = 2 km on ground**

Measure the distance between Home and Police Station on the map.

Approximate map distance = **4 cm**

On ground:

$$= 4 \times 2$$

$$= \mathbf{8 \text{ km}}$$

**Answer:**

On the map = **4 cm**

On the ground = **8 km**

---

**2. How far will he have to travel from his home to reach the hospital?**

Map distance (Home to Hospital)  $\approx$  **1.5 cm**

Ground distance

$$= 1.5 \times 2$$

$$= \mathbf{3 \text{ km}}$$

**Answer:**

On the map = **1.5 cm**

On the ground = **3 km**

---

**3. The fire station is halfway between home and the park. Mark it.**

Distance Home  $\rightarrow$  Park  $\approx$  2 cm

Halfway point = 1 cm from Home and 1 cm from Park.

**Answer:**

Fire Station should be marked **midway between Home and Park.**

---

**4. There is a bus stand 2 km from the park on the way to the police station. Mark it.**

Scale:

$$1 \text{ cm} = 2 \text{ km}$$

Therefore,

$$2 \text{ km} = 1 \text{ cm}$$

**Answer:**

Mark the Bus Stand **1 cm from the Park towards the Police Station.**

---

### **5. How far is the police station from the park?**

Map distance  $\approx$  **2 cm**

Ground distance

$$= 2 \times 2$$

$$= \mathbf{4 \text{ km}}$$

**Answer:**

On the map = **2 cm**

On the ground = **4 km**

## **NCERT CORNER**

### **Let Us DO**

We write the meeting point of the first row and first column as (1,1).

To reach the tortoise at (4,1):

- Move **3** steps towards east and reach the **4th** column.
- Then move **0** step(s) **north** and reach the first **row**.

**Answer:**

- 3
- 4th
- 0
- North

- Row
- 

**What is at (1,4)?**

At coordinate (1,4) there is a **Bird**.

**Answer the following questions now**

Do it yourself

### **EXAM TIME**

#### **A. Multiple Choice Questions (MCQs)**

**1. The direction in which the Sun rises is:**

**Answer:** (b) East

**2. A compass needle always points towards:**

**Answer:** (c) North

**3. On the grid map, moving left along a horizontal line means moving:**

**Answer:** (c) West

**4. If a map uses the scale 1 cm = 100 km, and the distance between two cities on the map is 2.5 cm, what is the actual distance?**

Actual distance =  $2.5 \times 100$

= **250 km**

**Answer:** (c) 250 km

---

#### **B. Fill in the Blanks**

1. A map is a **drawing** of a place.
  2. The compass needle always points towards the **North**.
  3. **Rajiv Chowk** is an interchange station between the Yellow Line and the Blue Line on the Delhi Metro map.
  4. Each square on the grid map measures **1 cm** on each side.
  5. Moving to the right on the grid map corresponds to the **East** direction.
-

### C. Write True or False

1. A neighbourhood map shows only classrooms and playgrounds.  
**False**
  2. Gerardus Mercator was the first person to draw a map of the Earth on a flat surface.  
**True**
  3. An interchange station is shown with a simple coloured circle without a dot.  
**False**
  4. The ant can move freely in any direction, not just on the dotted lines.  
**False**
  5. Moving upward on the grid means travelling North.  
**True**
- 

### D. Very Short Answer Questions

#### 1. What does a compass help us find?

A compass helps us find **directions**.

---

#### 2. Which line is Qutub Minar station on?

Qutub Minar station is on the **Yellow Line**.

---

#### 3. What does a circle with a dot at the centre represent on a metro map?

It represents an **interchange station**.

---

#### 4. What tool on the grid map shows the four cardinal directions?

A **compass rose** shows the four cardinal directions.

---

#### 5. How far does the ant crawl to reach the laddoos?

The ant crawls **10 units**.

---

## **E. Short Answer Type Questions**

### **1. What does a school map generally show?**

A school map generally shows the location of classrooms, playground, library, office, gate, canteen, etc.

---

### **2. Why is an interchange station important on a metro route?**

An interchange station allows passengers to change from one metro line to another.

---

### **3. How do maps help in finding the shortest route?**

Maps show directions and distances, helping us choose the shortest and easiest path.

---

## **F. Long Answer Type Questions**

### **1. Explain how to travel from Qutub Minar to Supreme Court using the Delhi Metro map.**

- Start from Qutub Minar on the Yellow Line.
  - Travel to Rajiv Chowk.
  - Change to the Blue Line.
  - Travel to Mandi House.
  - Change to the Violet Line.
  - Reach Supreme Court station.
- 

### **2. Explain the importance of directions and how a compass helps in navigation.**

Directions help us locate places and move correctly from one location to another. A compass shows the North direction and helps determine East, West and South, making navigation easier.

---

### **3. What is a grid and how does it help locate positions?**

A grid is a network of rows and columns. It helps locate exact positions using coordinates such as (3,4) or (5,2).

---

**4. A point is located at (2,3). The ant moves 3 steps East, 2 steps South, 4 steps West and finally 1 step North. Find the final coordinates.**

Starting point = (2,3)

Move 3 East → (5,3)

Move 2 South → (5,1)

Move 4 West → (1,1)

Move 1 North → (1,2)

**Answer: (1,2)**

---

**5. Explain what a map scale is and how it helps in calculating real distances.**

A map scale shows the relationship between map distance and actual ground distance. It helps us calculate real distances by multiplying the map measurement by the scale value.

Example:

If 1 cm = 2 km and the map distance is 5 cm,

Actual distance =  $5 \times 2 = 10$  km.

---

## COMPETENCY-BASED QUESTIONS

### A. Assertion–Reason

1.

Assertion (A): The coordinate system helps to locate exact positions on a grid map.

Reason (R): Each point on the grid map is represented by a unique pair of numbers.

**Answer: (a)** Both A and R are true and R is the correct explanation of A.

---

2.

Assertion (A): The coordinate system helps to locate exact positions on a grid map.

Reason (R): Each point on the grid map is represented by unique letters only.

**Answer: (c)** A is true but R is false.

---

3.

Assertion (A): The colour blue is used on maps to show forests and trees.

Reason (R): Green colour is used on maps to represent water bodies.

**Answer: (d)** A is false but R is true.

---

### **CASE STUDY BASED QUESTIONS**

**1. In which direction is the zoo from the railway station?**

The zoo is in the **North-West** direction from the railway station.

---

**2. The hospital is located in which direction with respect to the school?**

The hospital is located in the **South-West** direction of the school.

---

**3. If Rekha travels from the bus stop to the zoo, in which direction is she moving?**

The bus stop is east of the zoo.

Therefore Rekha moves towards the **West**.

---

**4. Why was it helpful for Rekha's group to use a map before starting their journey?**

The map helped them understand directions, distances and the shortest route, making the journey easier and saving time.

---

**Maths Booster**

### Activity-based Question

Draw a simple map of your school showing:

- Main Gate
- Classrooms
- Playground
- Library
- Canteen
- Office

Use symbols and colours and prepare a key for the map.

**Answer:** Do it yourself (Activity-based project work).

## Ch- 15: Data Through Pictures

### Practice Time 15.1

#### 1. Fill in the Blanks

(a)

**Data** is the collection of information in the form of numerical figures.

(b)

The first step of data handling is **collection** of data.

(c)

The data can be organised in frequency table using **tally** marks.

(d)

The three ways of data interpretation are **frequency table, pictograph, and bar graph**.

(e)

Circle graph is also called **pie chart**.

#### 2. Number of Newspapers Sold

Data:

20, 21, 18, 23, 24, 22, 20, 20, 17, 20, 22, 25, 22, 23, 20, 22, 20, 24, 18, 17

### Frequency Table

Newspapers Sold	Frequency
17	2
18	2
20	6
21	1
22	4
23	2
24	2
25	1

---

### 3. Height of Students

This activity depends on measurements taken in your class.

(a)

The tallest student is the one having the **greatest height**.

(b)

The most common height is the height occurring **maximum number of times**.

(c)

Difference =

**Tallest student's height – Your height**

---

### 4. Temperature of Ghaziabad

Data:

32, 30, 33, 29, 34, 30, 27

Lowest temperature =  $27^{\circ}\text{C}$

**Answer:**

The **7th day** was the coldest day.

---

## 5. Water Consumption

State	2000	2001
Rajasthan	20	25
Gujarat	22	28
Bangladesh	20	24
Brazil	18	20

**(a)**

State consuming more water in 2000:

Rajasthan = 20

Gujarat = 22

Bangladesh = 20

Brazil = 18

**Answer: Gujarat**

**(b)**

State consuming less water in 2001:

Rajasthan = 25

Gujarat = 28

Bangladesh = 24

Brazil = 20


**Answer: Brazil**

---

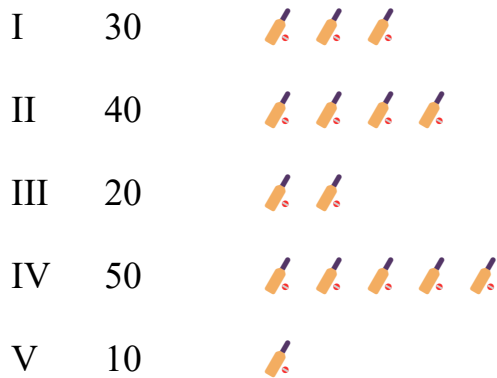
## Practice Time 15.2

### 1. Pictograph of Students Who Like Cricket

Key:

 = 10 Students

### Class Students Pictograph



### 2. Vehicles Used

Key:

 = 100 people

### Vehicle People Pictograph



### 3.

Activity based question. Students should collect actual attendance data and draw a pictograph.

---

### 4. Cakes Sold

Each cake = 10 cakes

### Data from Pictograph

Butterscotch =  $4 \times 10 = 40$

Pineapple =  $3 \times 10 = 30$

$$\text{Blueberry} = 2 \times 10 = 20$$

$$\text{Black Currant} = 3 \times 10 = 30$$

$$\text{Chocolate Truffle} = 6 \times 10 = 60$$

**(a)**

Total cakes sold

$$= 40 + 30 + 20 + 30 + 60$$

$$= \mathbf{180 \text{ cakes}}$$

**(b)**

Most favourite flavour

**Chocolate Truffle**

**(c)**

Least favourite flavour

**Blueberry**

**(d)**

More Butterscotch than Blueberry

$$= 40 - 20$$

$$= \mathbf{20 \text{ cakes}}$$

**(e)**

Same number of cakes sold

$$\text{Pineapple} = 30$$

$$\text{Black Currant} = 30$$

**Answer: Pineapple and Black Currant**

---

### **Practice Time 15.3**

#### **1. Marks Obtained**

**Student Marks**

Anurag 80

### **Student Marks**

Shubham 60

Aman 50

Seema 70

Neeta 45

### **Highest Marks**

**Anurag (80 marks)**

### **Lowest Marks**

**Neeta (45 marks)**

---

## **2. Tickets Sold**

### **Class Tickets**

III 50

IV 45

V 72

VI 70

VII 65

### **Answer:**

Maximum tickets sold by **Class V (72 tickets)**

---

## **3. Population of Metro Cities**

### **City Population (Lakhs)**

Delhi 58

Kolkata 89

Chennai 50

**City      Population (Lakhs)**

Bengaluru 60

Mumbai 43

**Answer:**

Least population = **Mumbai (43 lakhs)**

---

#### **4. Distribution of Newspapers**

**Newspaper      Number**

Amar Ujala      800

Dainik Jagran      500

Hindustan Times 300

Times of India      400

**Answer:**

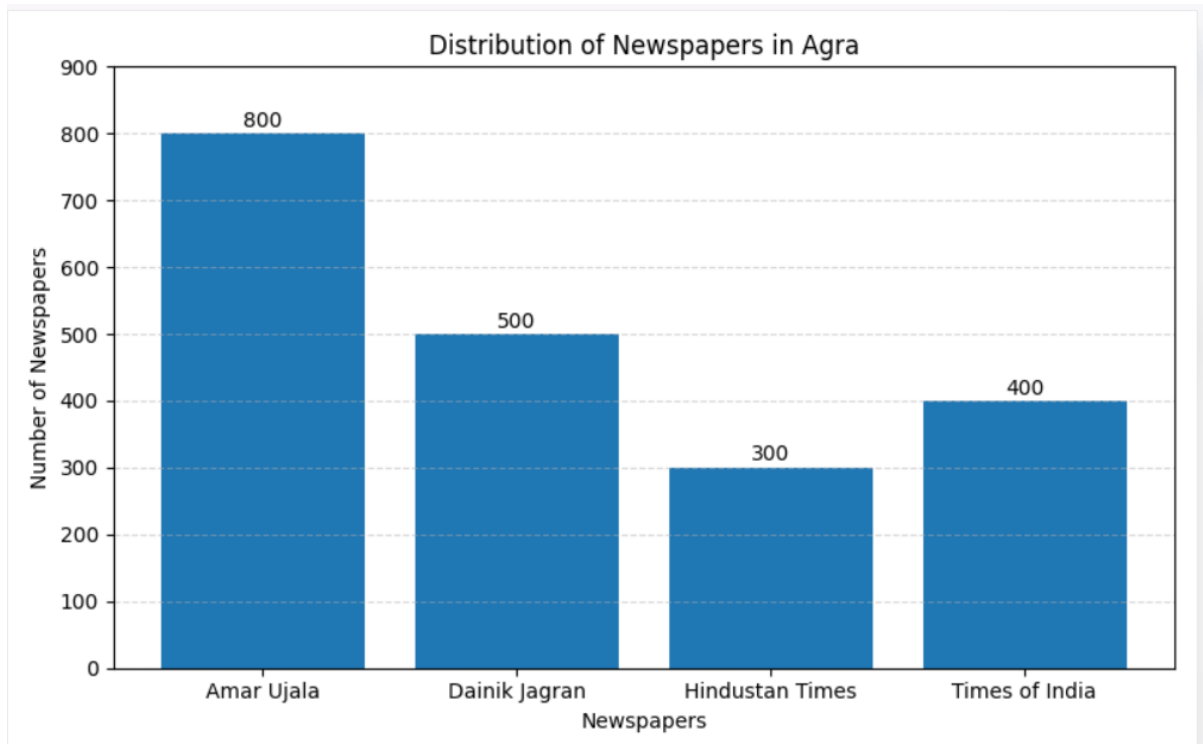
Bar graph to be drawn using:

Scale:

1 cm = 100 newspapers

Bars:

- Amar Ujala = 8 cm
- Dainik Jagran = 5 cm
- Hindustan Times = 3 cm
- Times of India = 4 cm



## 5. Wheat Production (Bar Graph)

(a)

The graph shows annual production of wheat from **2010 to 2014**.

(b)

Maximum production year

**2014**

(c)

Maximum and minimum production years

Maximum = **2014**

Minimum = **2010**

(d)

Minimum production yield

From graph:

2010 = **900 lakh tonnes**


(e)

"The production of wheat in 2012 is more than 2010 but less than 2014."

**Answer: True**

## **NCERT Corner**

### **Two-Wheelers on the Road**

**Key:**  = 3 two-wheelers

#### **Counting the pictograph**

**Monday:** 8 symbols =  $8 \times 3 = 24$  two-wheelers

**Wednesday:** 4 symbols =  $4 \times 3 = 12$  two-wheelers

**Friday:** 10 symbols =  $10 \times 3 = 30$  two-wheelers

#### **Answers**

**1. Which day had the most two-wheelers passing her house?**

**Friday**

**2. How many total two-wheelers did she record over three days?**

$$= 24 + 12 + 30$$

**= 66 two-wheelers**

**3. How many fewer two-wheelers were seen on Wednesday than on Monday?**

$$= 24 - 12$$

**= 12 two-wheelers**

**4. How many more two-wheelers were seen on Friday than on Wednesday?**

$$= 30 - 12$$

**= 18 two-wheelers**

**5. Choose any other scale and represent the same data.**

Example:

**1 symbol = 6 two-wheelers**

<b>Day</b>	<b>Two-wheelers</b>	<b>Symbols</b>
------------	---------------------	----------------

Monday	24	4
--------	----	---

Wednesday	12	2
-----------	----	---

<b>Day</b>	<b>Two-wheelers Symbols</b>	
Friday	30	5

---

### **Recording a Day**

#### **Raman's Routine**

Sleeping = 9 hours

School = 6 hours

Studying = 2 hours

Eating & Playing = 5 hours

Other Activities = 1 hour

#### **Sheela's Routine (Bar Graph)**

Sleeping = 8 hours

School = 7 hours

Studying = 4 hours

Eating & Playing = 3 hours

Other Activities = 2 hours

---

### **Answers**

#### **1. Whose daily routine shows more time spent on sleeping?**

Raman = 9 hours

Sheela = 8 hours

**Answer: Raman**

---

#### **2. Who spends more hours in school?**

Raman = 6 hours

Sheela = 7 hours

**Answer: Sheela**

---

**3. How many more hours does Sheela spend studying compared to Raman?**

$$= 4 - 2$$

**= 2 hours**

---

**4. Is there any activity on which they spend the same amount of time?**

No.

**Answer: No activity has the same time.**

---

**5. Whose routine is more balanced? Why?**

**Answer:** Sheela's routine is more balanced because she gives proper time to sleeping, school, studying, eating, playing and other activities.

---

### **Food Wastage in the School Canteen**

#### **Data from Bar Graph**

**Food Item    Food Wastage (kg)**

Sandwich    5

Paratha      6

Khichdi      8

Puri-Sabzi   7

Idli-Sambar 4

---

**1. Which food item had the highest amount of wastage?**

**Khichdi (8 kg)**

---

**2. Which food item had the least amount of wastage?**

**Idli-Sambar (4 kg)**

---

**3. How much total food wastage was recorded?**

$$= 5 + 6 + 8 + 7 + 4$$

$$= \mathbf{30 \text{ kg}}$$

---

**4. If 1 kg food waste can feed 3 children, how many children could have been fed?**

$$= 30 \times 3$$

$$= \mathbf{90 \text{ children}}$$

---

**5. Which day had less food wastage than Wednesday?**

Wednesday wastage = 8 kg

Less than 8 kg:

- Monday
- Tuesday
- Thursday
- Friday

**Answer:** Monday, Tuesday, Thursday and Friday

---

**6. Which food item is likely to be wasted the most next week?**

**Khichdi**

(Because it had the highest wastage this week.)

---

## **EXAM TIME**

### **A. Multiple Choice Questions**

1. The process of collecting, organising and interpreting information is called

**(b) Data handling**

---

2. The number of times an item occurs is known as

**(b) Frequency**

---

3. In tally marks, the fifth line is drawn

**(d) Across the first four marks**

---

4. Which represents data using pictures or symbols?

**(a) Pictograph**

---

5. The rectangles in a bar graph are

**(b) Of equal width**

---

## **B. Fill in the Blanks**

1. **Data** means collection of information or facts.
2. Each tally mark represents **one** observation.
3. The fifth tally mark is drawn **across** the first four marks.
4. A bar graph uses **bars** of equal width to represent data.
5. The bar graph gives information through pictures and symbols. **False**

Correct word = **Bar graph gives information through bars.**

## **C. Very Short Answer Questions**

1. What do we call information collected in the form of numbers or facts?

Data

---

2. Name the first step of data handling.

Collection of data

---

3. What does each tally mark represent?

One observation

---

4. What is a pictograph?

A pictograph is a representation of data using pictures or symbols.

---

5. What is the horizontal line in a bar graph called?

Horizontal axis (X-axis)

---

#### **D. Short Answer Questions**

**1. Write any two examples from daily life where you use data.**

1. Attendance register
  2. Marks obtained in exams
- 

**2. Explain what a frequency table is.**

A frequency table is a table that shows how many times each item occurs in a data set.

---

**3. What are the four steps of data handling?**

1. Collection
  2. Organisation
  3. Representation
  4. Interpretation
- 

**4. Why is data organisation important?**

It makes information easy to read, understand and analyse.

---

## 5. How is a bar graph different from a pictograph?

### Pictograph

Uses pictures/symbols

Easy visual representation

Symbols represent numbers

### Bar Graph

Uses bars

Gives exact comparison

Bar height represents numbers

---

## E. Long Answer Questions

### 1. Define data collection and explain with an example.

Data collection means gathering information.

**Example:** Recording marks scored by students in a test.

---

### 2. Explain the use of tally marks.

Tally marks help count and organise data quickly. Every fifth tally mark crosses the previous four marks, making counting easier.

---

### 3. Books Read by Students

#### Student Books

Asha 4

Ravi 6

Kiran 8

Riya 5

Bar graph values:

- Asha = 4
  - Ravi = 6
  - Kiran = 8
  - Riya = 5
-

#### 4. Visitors to a Park

Data:

2015 = 20

2016 = 40

2017 = 60

2018 = 50

2019 = 35

The graph matching these values is:

**Option (d)**

---

#### Competency-Based Questions

##### A. Assertion-Reason

1

Assertion: Data handling helps us understand information easily. ✓

Reason: Data handling involves drawing pictures only.

**Answer: (c) Assertion is true but Reason is false.**

---

2

Assertion: Tally marks are used to make counting simple and quick. ✓

Reason: Every fifth tally mark is drawn across the first four. ✓

**✓ Answer: (a) Both are true and Reason correctly explains Assertion.**

---

3

Assertion: In a bar graph, all bars are of equal width. ✓

Reason: Bars of different width help identify categories clearly. ✗

**✓ Answer: (c) Assertion is true but Reason is false.**

---

## **B. Case Study Based Questions**

### **Mangoes Sold**

<b>Day</b>	<b>Mangoes Sold</b>
Monday	50
Tuesday	70
Wednesday	70
Thursday	60
Friday	60
Saturday	100

---

**1. On which day were the least mangoes sold?**

**Monday (50 mangoes)**

---

**2. On which day was the sale highest?**

**Saturday (100 mangoes)**

---

**3. How many more mangoes were sold on Saturday than on Wednesday?**

$$= 100 - 70$$

**= 30 mangoes**

---

**4. Find the total number of mangoes sold in the week.**

$$= 50 + 70 + 70 + 60 + 60 + 100$$

**= 410 mangoes**

---

**5. If the fruit seller earns ₹2 per mango, what is his total earning?**

$$= 410 \times 2$$

= ₹820

---

### **C. Maths Booster**

This activity requires colouring the animals according to their natural colours and then making a pictograph. Since colours can vary and the activity is practical, it is generally completed by observation and drawing in the notebook.