YUVE

Based on the Syllabus prescribed by National Council of Educational Research and Training (NCERT)

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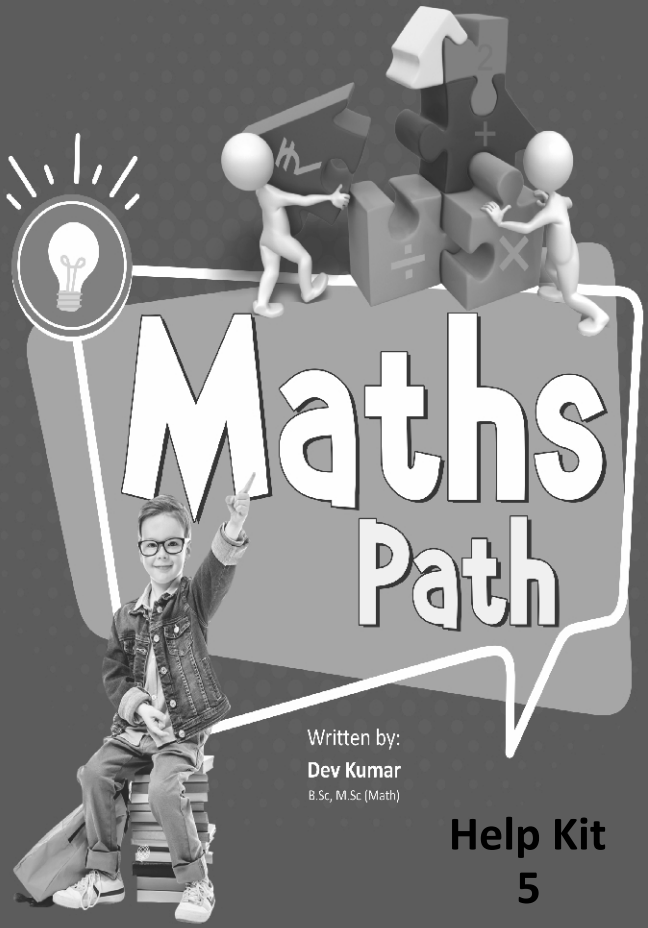

Maths Path

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Help Kit 5

Teacher's Manual
MATHEMATICS
Class-5

1. LARGE NUMBERS

EXERCISE 1.1

1. (a) 55, 06, 42, 000 = fifty five crore six lakh forty-two thousand.

(b) 2,02,02,200 = Two crore two lakh two thouand two hundred.

(c) 8,35,42,697 = Eight crore thirty-five lakh forty-two thousand six hundred ninety-seven.

(d) 6,11,22,388 = Six crore eleven lakh twenty-two thousand three hundred eighty-eight.

(e) 99,40,01,101 = Ninety-nine crore forty lakh one thousand one hundred one.

(f) 4,00,04,049 = Four crore four thousand forty nine.

2. (a) Seventy-seven lakh seventy-seven thousand eight hundred fifty-three = 77,77,853

(b) Three crore ten lakh ten thousand ten = 3,10,10,010

(c) Five crore fifty-two thousand one hundred nine = 5,00,52,109

(d) Eighty lakh eight thousand five hundred fifteen = 80,08,515

(e) Ninety crore seven thousand forty = 90,00,07,040

EXERCISE 1.2

1. (a) 6 in 7,01,43,600 = One period, hundreds place

(b) 4 in 2,65,74,385 = Thousands period, one thousands place.

(c) 8 in 92,80,642 = Thousands period, ten thousands place.

(d) 6 in 65,22,444 = Lakhs period, ten lakhs place.

(e) 4 in 4,70,55,189 = Crores period, one crores place.

(f) 5 in 94,75,62,831 = Lakhs period, one lakhs place.

(g) 1 in 1,40,00,204 = crores period, one crores place.

(h) 5 in 8,35,42,697 = lakhs period, one lakhs place.

(i) 9 in 20,35,53,097 = Ones period, tens place.

2. (a) 2 in 27,465,418 = Millions period ten millions place

(b) 5 in 64,532,981 = Thousands period, hundred thousands place.

(c) 8 in 30,140,872 = Ones period, hundreds place.

(d) 8 in 899,999,999 = Millions period, hundred millions place.

(e) 7 in 88,875,666 = Thousands period, ten thousands place.

(f) 2 in 403,020,130 = Thousands period, ten thousands place.

(g) 6 in 13,546,789 = Thousands period, one thousands place.

(h) 6 in 80,540,316 = Ones period, Ones place.

(i) 4 in 94,200,001 = Millions period, one millions place.

3. (a) 254387 =2,54,387 **(b)** 510036 = 5,10,036

(c) 9376585 =93,76,585 **(d)** 805717233 = 80,57,17,233

4. (a) 6392378 =6,392,378 **(b)** 723451084 = 723,451,084

(c) 28032926 =28,032,926 **(d)** 361931450 = 361,931,450

5. (a) 6,04,15,709 =60,415,709 **(b)** 65,00,14,580 = 650,014,580

(c) 74,35,89,162 =743,589,162

(d) 9,09,09,099 =90,909,099

6. (a) 30,100,279 =3,01,00,279

(b) 941,000,035 = 94,10,00,035

(c) 504,409,008 =50,44,09,008

(d) 83,016,214 = 8,30,16,214

7. (a) 72233499 =Seventy-two million two hundred thirty-three thousand four hundred ninety-nine.

(b) 883990090 =Eight hundred eighty three million nine hundred ninety thousand ninety.

(c) 51124258 =Fifty-one million one hundred twenty-four thousands two hundred fifty-eight.

(d) 20202200 =Twenty million two hundred two thousand two hundred.

(e) 83542697 =Eighty-three million five hundred forty two thousands six hundred ninety-seven.

(f) 550642000 = Five hundred fifty million six hundred forty-two thousand.

8. (a) Nine million one hundred fifty-seven thousand four hundred eighty-two = 9,157,482

(b) Sixty-four million forty-three thousand = 64,043,000

(c) Two hundred fifty million six hundred thirty thousand two hundred eighty = 250,630,280

(d) Seventy-eight million eight hundred ninety thousand five hundred five = 78,890,505

(e) Thirty million five hundred sixty-three thousand seven hundred forty-two = 30,563,742

9. – 10. Do it yourself.

EXERCISE 1.3

1. & 2. Do it yourself.

3. (a) 6 in 1,69,35,849 = 60,00,000

(b) 9 in 4,79,85,803 = 9,00,000

(c) 8 in 81,45,60,219 = 80,00,00,000

(d) 9 in 269,078,243 = 9,000,000

(e) 3 in 730,426,947 = 30,000,000

(f) 8 in 846,230,631 = 800,000,000

4. (a) 45,62,870 = 40,00,000 + 5,00,000 + 60,000 +2000 + 800 + 70

(b) 5,04,31,089 = 5,00,00,000 + 4,00,000 +30,000 + 1000 +80 + 9

(c) to **(h)** Do it yourself.

5. (a) 5,00,00,000 + 30,00,000 +6,00,000 +90,000 +5000 +700 +80 +6 = 5,36,95,786

(b) 70,000,000 + 5,000,000 + 800,000 + 60,000 +4000 + 800 + 60 + 5 = 75,864,865

EXERCISE 1.4

1. (a) 2,35,680 2,35,681

(b) 2,45,679 2,45,680

(c) 92,47,699 92,47,700

(d) 82,79,999 82,80,000

2. (a) 47,58,940 47,58,939

(b) 2,57,89,100 2,57,89,099

(c) 2,48,68,000 2,48,67,999

(d) 2,47,80,000 2,47,79,999

3. (a) 8,32,250 > 8,32,224

(b) 2,26,978 > 2,26,878

(c) 2,93,73,246 < 2,93,89,845

(d) 19,26,79,195 > 18,29,76,958

(e) 206,049,236 < 206,149,236

(f) 36,463,209 > 36,436,209

(g) 23,89,985 > 9,56,876

(h) 22,10,012 > 18,88,888

4. (a) 1,53,52,109; 1,65,32,109; 1,63,25,109

(b) 2,30,30,400; 3,30,30,400; 3,20,30,400

(c) 66,66,606; 66,60,066; 66,60,666

(d) 52,67,304; 52,57,304; 52,77,304

5. (a) 3,54,618; 2,74,318; 1,88,888

(b) 5,85,888; 5,58,588; 5,58,885

(c) 24,88,617; 25,88,717, 26,88,517

(d) 4,08,88,045; 5,08,68,045; 4,08,68,045

6. (a) 9,37,214; 9,37,412; 9,37,442

(b) 51,09,861; 67,61,048; 81,61,037

(c) 29,37,453; 29,37,543; 29,47,543

(d) 2,94,58,631; 2,95,46,831; 2,95,48,631

7. (a) 8,87,087; 8,78,807; 7,88,870

(b) 19,41,752; 19,41,572; 14,91,752

(c) 44,44,35,015; 44,43,45,105; 44,43,45,015

(d) 6,95,83,295; 6,59,93,259; 6,59,83,259

EXERCISE 1.5

			Greatest	Smallest
1.	**(a)**	7,6, 4, 2, 1, 3, 5	76,54,321	12,34,567
	(b)	5,0, 3, 2, 4, 6, 8	86,54,320	20,34,568
	(c)	9, 6, 3, 0, 5, 2,1	96,53,210	10,23,569
	(d)	7, 1, 2, 5, 4, 3, 9	97,54,321	12,34,579
	(e)	8, 5, 0, 3, 4, 9, 2	98,54,320	20,34,589

			Greatest	Smallest
2.	**(a)**	8, 4, 6, 2	88,88,642	22,22,468
	(b)	1, 3, 0, 6	66,66,310	10,00,036
	(c)	3, 2, 5, 0	55,55,320	20,00,035
	(d)	7, 6, 0, 8	88,88,760	60,00,078

EXERCISE 1.6

1.	**(a)**	5, 48, 630	5,48,640; 5,48,650; 5,48,660; 5,48,670;
	(b)	46, 25, 370	46,25,380; 46, 25, 390; 46,25,400; 46,25,410
2.	**(a)**	2, 38, 680	2,38,780; 2,38,880; 2,38,980; 2,39,080
	(b)	15, 43, 739	15,43,839; 15,43,939; 15,44,039; 15,44,139
3.	**(a)**	3, 68, 274	3,69,274; 3,70,274; 3,71,274; 372,274;
	(b)	14, 26, 749	14,27,749; 14,28,749; 14,29,749; 14,30,749

EXERCISE 1.7

1. (a) 12,350 **(b)** 27,470

(c) 1,35,320 **(d)** 2,40,520

2. (a) 20,200 **(b)** 19,000

(c) 49,68,500 **(d)** 18,71,200

3. (a) 35,000 **(b)** 2,19,000

(c) 4,24,000 **(d)** 5,35,000

4. (a) 4,00,000 **(b)** 3,00,000

(c) 4,00,000 **(d)** 2,00,000

5. (a) 8600 m **(b)** 8800 m **(c)** 7800 m

(d) 8100 m **(e)** 8600 m

6. Population of country = 7, 52, 03, 431

(a) Nearest lakh

The digit at the lakhs place = 2

The digit next right to it = 0

So we put zeroes in place of all the digits at the right of the lakhs place :

7, 52, 00, 000

(b) Nearest crore

The digit at the crore place = 7

The digit next right to it = 5

So we add 1 at the crores place :

$7 + 1 = 8$

So, now nearest crore = 8,00,00,000

7. Distance = 14,88,00,000 km

For nearest crore

The digit at the crore place = 4

The digit next right to it = 8

So, we add 1 at the crore place = 4 +1 = 5

So, Now nearest crore = 15,00,00,000 km.

8. (a) Number =6,84,32,715

Digit at crore place = 6

Digit next to it = 8

So we add 1 at crore place = 6 + 1 = 7

So, nearest crore = 7,00,00,000

(b) Number = 9,40,30,110

Digit at crore place =9

Digit next to it = 4

So we take it zero

Now nearest crore =9,00,00,000

(c) & (d) Do it yourself.

2. ROMAN NUMERALS

EXERCISE 2.1

1. (a) 10 = VV, X **(b)** 49 = IL, XLIX **(c)** 99 =IC, XCIX

(d) 40 = XXXX, XL **(e)** 450= LD, CDL **(c)** 490=CDXC,XD

2. (a) 14 = XIV **(b)** 19 = XIX **(c)** 83=LXXXIII

(d) 92 = XCII **(e)** 39 = XXXIX **(f)** 89=LXXXIX

(g) 145 = CXLV **(h)** 218= CCXVIII **(i)** 328=CCCXXVIII

(j) 448= CDXLVIII **(k)** 593=DXCIII **(l)** 489= CDLXXXIX

(m) 499 = CDXCIX **(n)** 555=DLV **(o)** 666=DCLXVI

(p) 979= CMLXXIX **(q)** 591=DXCI **(r)** 678=DCLXXVIII

(s) 789= DCCLXXXIX **(t)** 999=CMXCIX

3. (a) XIX= 19 **(b)** XXIV=24 **(c)** XXXIII =33

(d) XLII= 42 **(e)** XLVI= 46 **(f)** LIII = 53

(g) LXIV=64 **(h)** LXXXII =82 **(i)** XCII=92

(j) XCIX= 99 **(k)** CIII=103 **(l)** XCIV=94

(m) CIV=104 **(n)** CXXIX=129 **(o)** CCXV=215

(p) CCXXII=322 **(q)** CDLXVI=466 **(r)** DCLV=655

(s) DCCXIV =714 **(t)** CMLXIX =969

4. (a) XXIII + III = 26 **(b)** XLI + XI = 52

(c) XXXV +VII =42 **(d)** XL + X =50

(e) CXX+ XL =160 **(f)** CCC + C = 400

(g) CD + CCC =700 **(h)** CM +C =1000

3. FUNDAMENTAL OPERATIONS

EXERCISE 3.1

1. (a)

1 1 1 1 1 2
962653
+ 43729
+ 756378
1762760

(b)

1 2 2 1 1
438957
+ 689734
+ 45876
1174567

(c)

1 1 1 2 1
85462
+ 432483
+ 475389
993334

(d)

2 2 2 2 2 1
4937689
+ 467983
+ 5895674
11301346

(e)

1 1 1 1 1 2
1256237
+58783919
+ 7324516
67364672

(f)

1 1 1 2 2 1
23456789
+ 1234567
+34567892
59259248

(g)

1	1	1	1	1	1	1	1
	1	7	9	8	4	7	6	0
+	5	1	4	0	9	6	3	4
+		2	3	5	4	0	8	9
	7	1	7	4	8	4	8	3

(h)

1			1	1	2	1	
	3	4	4	2	8	1	7	6
+	2	8	0	3	1	4	9	6
+	2	6	2	3	5	4	6	7
	8	8	6	9	5	1	3	9

2. (a)

1	1						
	5	5	5	4	4	3	3	3
+	4	4	4	3	3	2	2	2
+	3	3	3	2	2	1	1	1
	1	3	3	2	9	9	6	6

(b)

1	1	1	1	2	2	1	1	
	6	4	4	7	7	8	8	8
+		5	5	3	7	6	4	6
+			6	7	8	7	1	5
		7	0	6	9	4	2	4	9

(c)

1	1	1	1	2	2	1	
	5	2	3	4	5	6	7	8
+	4	3	2	1	6	7	8	9
+	9	7	4	7	5	6	5	6
	1	9	3	0	3	8	1	2	3

3.

Land cost	=	₹ 732400
Construction cost	=	₹ 453721
Labour cost	=	+₹ 200739
Total cost	=	₹ 1386860

4.

Repair cost	=	₹ 356870
Painting cost	=	₹ 109400
Furniture cost	=	+₹ 264968
Total cost	=	₹ 731238

5.

Votes of 1st candidate	=	8724738
Votes of 2nd candidate	=	4554936
Votes of 3rd candidate	=	937569
Votes not polled candidate	=	+ 345607
Total votes	=	14562850

6.

Travel Cost	=	₹ 56864
Hotel cost	=	₹145675
Shopping cost	=	+₹ 85750
Total cost	=	₹288289

7.

Price of gold	=	₹ 450750
Price of diamond	=	₹ 973450
Price of precious stone	=	+₹ 349648
Total price	=	₹1773848

8.

No. of men	=	57920408
No. of women	=	45672082
No. of children	=	+ 39900785
Total people	=	143493275

9.

Production in a certain year	=	946475 toys
Production in next year	=	+ 457268 toys
Production in two years	=	1403743 toys

10.

In a certain year no. of viewers	=	53756380
In next year no. of viewers	=	+ 22567492
In two years no. of viewers	=	76323872

EXERCISE 3.2

1. (a) 23144671 − 3565278 = 19579393

(b) 60231040 − 34270451 = 25960589

2. (a) 8723450 − 2578765 = 6144685

(b) 12345678 − 9234567 = 3111111

(c) 321321321 − 123123123 = 198198198

(d) 53214568 − 23400769 = 29813799

3. 6547832 + 3215387 − 4925466

(a)

$$\begin{array}{r} 6547832 \\ +\ 3215387 \\ \hline 9763219 \end{array} \qquad \begin{array}{r} 9763219 \\ -\ 4925466 \\ \hline 4837753 \end{array}$$

(b) 35012345 – 5645789 – 13254678

$$\begin{array}{r} 35012345 \\ -\ 5645789 \\ \hline 29366556 \end{array} \qquad \begin{array}{r} 29366556 \\ -13254678 \\ \hline 16111878 \end{array}$$

4. Sum of two nos. = 5 8 6 4 0 2 3 0

One no. = – 3 2 5 6 7 3 4 1

So, other no. = 2 6 0 7 2 8 8 9

5. (1678456 + 2134987) – NUMBER

= (2134987 – 1678456)

(3813443) – NUMBER = 456531

∴ NUMBER = 3813443 – 456531

= 3356912

6. Population of city A = 1 3 5 4 5 7 2 0

Population of city B = 1 2 5 4 7 2 5 1

City A has more population.

And more population = 1 3 5 4 5 7 2 0

– 1 2 5 4 7 2 5 1

9 9 8 4 6 9

7. Population of a country = 1 7 2 3 4 5 1 0 0

No. of men = 8 5 6 2 5 3 4 7

No. of women = 6 7 5 2 3 1 4 0

∴ Population of children

= 172345100 – (85625347 + 67523140)

= 172345100 – 153148487

= 19196613

8. Sugar in Godown = 5 8 7 0 2 2 3 4 kg

more sugar arrived = + 4 7 2 3 5 2 6 5 kg

Now total sugar = 1 0 5 9 3 7 4 9 9 kg

Sugar delivered = – 6 4 3 5 2 7 8 9 kg

Sugar left = 4 1 5 8 4 7 1 0 kg

9. Required no. = 1 2 1 3 4 4 0 0 0

= – 6 7 2 3 5 2 0 7

= 5 4 1 0 8 7 9 3

10. Increase in population = 4 0 1 2 5 5 7 0 0

= – 2 4 6 6 7 7 8 8 8

= 1 5 4 5 7 7 8 1 2

EXERCISE 3.3

1. (a)

	300
×	16
	1800
	3000
	4800

(b)

	400
×	60
	000
	24000
	24000

(c) 25 × 4000 = (25 × 4) × 1000

= 100 × 1000

= 100000

(d) 500 × 600 = (5 × 6) × 10000

= 300000

(e) **to (h)** : Do it yourself.

(i)

$$\begin{array}{rl} 456 & \\ \times 928 & \\ \hline 3648 & (456 \times 8) \\ 9210 & (456 \times 20) \\ 410400 & (456 \times 900) \\ \hline 423168 & \end{array}$$

(j) Do it yourself

(k)

$$\begin{array}{rl} 5685 & \\ \times 372 & \\ \hline 11370 & (5685 \times 2) \\ 397950 & (5685 \times 70) \\ 1705500 & (5685 \times 300) \\ \hline 2114820 & \end{array}$$

(l)

$$\begin{array}{rl} 2446 & \\ \times 4213 & \\ \hline 7338 & (2446 \times 3) \\ 24460 & (2446 \times 10) \\ 489200 & (2446 \times 200) \\ 9748000 & (2446 \times 4000) \\ \hline 10304998 & \end{array}$$

(m) to **(p)** Do it yourself.

2. Total no. of students = 1895
Each student pays = ₹5422
So, total amount collected
= ₹5422 × 1895
= ₹10274690

3. In one day sale of milk = 3456 litre
∵ Leap year has = 366 days
So, In 366 days sale of milk = 3456 × 366
= 1264896 litre

4. ∵ 1 hour = 60 minutes

$\therefore$ 24 hours = 60 × 24 = 1440 minutes

$\because$ In one minute engine pumps = 1246 litre of water

$\therefore$ In 1440 minutes engine pumps = 1246 × 1440

= 1794240 litre of water

5. $\because$ Cost of 1 watch = ₹ 645

$\therefore$ Cost of 3675 watches = ₹ 645 × 3675

= ₹ 2370375

6. $\because$ 1 box have = 288 oranges

$\therefore$ 6345 boxes have = 288 × 6345

= 1827360 oranges

7. In one day factory produces = 4365 bags

In 365 days factory produces = 4365 × 365

= 1553940 bags

EXERCISE 3.4

1. (a) 1500 ÷ 50

Number of zeroes left in quotient = 2 – 1 = 1

Now, 150 ÷ 5 = 30

(b) 10,000 ÷ 500

Number of zeroes left in quotient = 4 – 2 = 2

Now, 100 ÷ 5 = 20

(c) 24,000 ÷ 600

Number of zeroes left in quotient = 3 – 2 = 1

Now, 240 ÷ 6 = 40

(d) to **(h)** Do it yourself.

(i)

```
      1 5 6 4
144 ) 2 2 5 2 1 6
    –1 4 4
      8 1 2
      7 2 0
        9 2 1
        8 6 4
          5 7 6
          5 7 6
            0
```

(j)

```
      1 3 2 4
372 ) 4 9 2 7 2 0
    –3 7 2
      1 2 0 7
      1 1 1 6
          9 1 2
          7 4 4
          1 6 8 0
          1 4 8 8
            1 9 2
```

Q =1564

Q = 1324, R =192

(k) to **(p)** Do it yourself.

2. 275 apples are packed in =1 box

1 apple is packed in = $\frac{1}{275}$

2544025 apples are packed = $\frac{2544025}{275}$

= 9251 boxes

3. Cost of 827 almirahs is = ₹1940969

Cost of 1 almirah = $\frac{1940969}{827}$

= ₹2347 boxes

4. 125 matchboxes in = 1 carton

1 matchbox in = $\frac{1}{125}$

827500 matchboxes in = $\frac{827500}{125}$

= 6620 cartons

5. Cost of 378 tricycles = ₹ 471366

Cost of 1 tricycle = ₹ $\frac{471366}{378}$

= ₹ 1247

6. 725 litre of water = 1 minute

1 litre of water = $\frac{1}{725}$

1001950 litre of water = $\frac{1001950}{725}$ minutes

= 23 hours 2 minutes

7. Product of two nos. = 9147669

If one no. = 951

Then other no. = $\frac{9147669}{951}$

= 9619

EXERCISE 3.5

1. (a) 4590; 4600; 5000 **(b)** 9370; 9400; 9000

(c) 6690; 6700; 7000 **(d)** 4180; 4200; 4000

(e) 9550; 9500; 10,000

2. (a) 87 + 318 = 90 + 320 (closer estimate)

= 410

(b) 898 + 785 = 900 + 790 (closer estimate)

= 1690

(c) 958 +387 = 960 + 390 (closer estimate)

= 1350

(d) 81 + 479 = 80 + 480 (closer estimate)

= 560

3. (a) 59 + 342

Rough estimate = 50 + 350 = 400

Closer estimate = 50 +350 = 400

(b) 582 + 178

Rough estimate = 600 + 200 = 800

Closer estimate = 580 +180 = 760

(c) 8734 – 7599

Rough estimate = 8700 – 7600 = 1100

Closer estimate = 8730 – 7600 = 1130

(d) 9348 – 8365

Rough estimate = 9300 – 8400 = 900

Closer estimate = 9350 – 8370 = 980

4. (a) 19 × 795

On estimating = 20 × 800 = 16000

(b) 489 × 362

On estimating = 500 × 400 = 200000

(c) 325 × 8491

On estimating = 300 × 8000 = 2400000

(d) 2904 × 888

On estimating = 3000 × 900 = 2700000

Mental maths = Do it yourself

4. PRIME FACTORISATION

EXERCISE 4.1

1. (a) 1; 3; 9 **(b)** 1; 2; 3; 4; 6; 12

(c) 1; 2; 4; 5; 10; 20 **(d)** 1; 3; 5; 9; 15; 45

(e) 1; 3; 7; 9; 21; 63

2. (a) 23

Factors of 23 = 1, 23

∴ no. of factors = 2

(b) 24

Factors of 24 = 1, 2, 3, 4, 6, 8, 12, 24

∴ no. of factors = 8

(c) 35

Factors of 35 = 1, 5, 7, 35

∴ no. of factors = 4

(d) 40

Factors of 40 = 1, 2, 4, 5, 8, 10, 20, 40

∴ no. of factors = 8

(e) 72

Factors of 72 = 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72

∴ no. of factors = 12

3. (a) Factors of 6 = 1, 2, 3, 6

∴ 6 has more than two factors

∴ it is a composite no.

(b) Factors of 10 = 1, 2, 5, 10

∴ 10 has more than two factors

∴ it is a composite no.

(c) Factors of 17 = 1, 17

∴ 17 has only two factors

∴ it is a prime no.

(d) Factors of 28 = 1, 2, 4, 7, 14, 28

∴ 28 has more than two factors

∴ it is a prime no.

(e) Factors of 41 = 1, 41

∴ 41 has only two factors

∴ it is a prime no.

(f) to **(i)** Do it yourself.

5. Fill in the blanks

(a) The smallest composite number is 4.

(b) Every prime number is odd except 2.

(c) Two consecutive numbers which are prime numbers are 2 and 3.

(d) The only even prime number is 2.

(e) The number 4 has 3 factors.

(f) A composite number has 3 or more factors

(g) 1 is neither prime nor composite

(h) There are 25 prime numbers between 1 and 100.

EXERCISE 4.2

1. Do it youself.

2. (a) 1348

It is divisible by 2 but it is not divisible by 3.

So it is not divisible by 6.

(b) 1500

It is divisible by 2 & 3.

So it is divisible by 6.

(c) 3426

It is divisible by 2 & 3.

So it is divisible by 6.

(d) 2856

It is divisible by 2 & 3.

So it is divisible by 6.

(e) 10724

It is divisible by 2 but it is not divisible by 3.

So it is divisible by 6.

3. (a) 847

$\because$ (8 + 7) ; (4)

15 – 4 = 11 Divisible by 11

So, 847 is divisible by 11.

(b) 1331

$\because$ (1 + 3) =4 ; 3 +1 = 4

4 – 4 = 0

So, 1331 is divisible by 11.

(c) 5083

$\because$ (5 + 8) = 13 ; 0 + 3 = 3

13 – 3 = 10

$\therefore$ It is not divisible by 11.

(d) 80618

$\because$ (8 + 6 +8) = 22 ; 1 + 0 = 1

22 – 1 = 21

$\therefore$ It is not divisible by 11.

(e) 10824

$\because$ (1 + 8 +4) = 13 ; 0 + 2 = 2

13 – 2 = 11 Divisible by 11

$\therefore$ It is not divisible by 11.

4. Do it yourself.

5. (a)

2	12
2	6
3	3
	1

$12 = 2 \times 2 \times 3$

(b)

2	16
2	8
2	4
2	2
	1

$16 = 2 \times 2 \times 2 \times 2$

(c)

2	18
3	9
3	3
	1

$18 = 2 \times 3 \times 3$

(d)

2	20
2	10
5	5
	1

$20 = 2 \times 2 \times 5$

(e) to **(t)** : Do it yourself

(u)

2	108
2	54
3	27
3	9
3	3
	1

$\therefore 108 = 2 \times 2 \times 3 \times 3 \times 3$

(v)

2	126
3	63
3	21
7	7
	1

$\therefore 126 = 2 \times 3 \times 3 \times 7$

(w)

2	144
2	72
2	36
2	18
3	9
3	3
	1

(x)

2	176
2	88
2	44
2	22
11	11
	1

$\therefore$ 144 = 2 × 2 × 2 × 2 × 3 × 3

$\therefore$ 176 = 2 × 2 × 2×2 × 11

(y)

2	224
2	112
2	56
2	28
2	14
7	7
	1

$\therefore$ 224 = 2 × 2 × 2 × 2 × 2 × 7

5. HCF AND LCM

EXERCISE 5.1

1. (a) 12, 18

12 = 2 × 2 × 3

18 = 2 × 3 × 3

HCF = 2 × 3

= 6

(b) 25, 35

25 = 5 × 5

35 = 5 × 7

HCF = 5

(c) 20, 32

20 = 2 × 2 × 5

32 = 2 × 2 × 2 × 2 × 2

HCF=2 × 2 = 4

(d) 25, 45

25 = 5 × 5

(e) 56, 72

56 = 2 × 2 × 2 × 7

$45 = 5 \times 9$

↓

HCF = 5

$72 = 2 \times 2 \times 2 \times 3 \times 3$

↓ ↓ ↓

HCF = $2 \times 2 \times 2 = 8$

(f) 52, 78

$52 = 2 \times 2 \times 13$

$78 = 2 \times 3 \times 13$

↓ ↓

HCF = $2 \times 13 = 26$

(g) 63, 147

$63 = 3 \times 3 \times 7$

$147 = 3 \times 7 \times 7$

↓ ↓

HCF = $3 \times 7 = 21$

(h) 88, 132

$88 = 2 \times 2 \times 2 \times 11$

$132 = 2 \times 2 \times 3 \times 11$

↓ ↓

HCF = $2 \times 2 \times 11 = 44$

2. (a)

2	64, 96
2	32, 48
2	16, 24
2	8, 12
2	4, 6
	2, 3

$\therefore$ HCF = $2 \times 2 \times 2 \times 2 \times 2 = 32$

(b)

7	35, 49, 84
	5, 7, 12

$\therefore$ HCF = 7

(c)

4	32, 40, 56
2	8, 10, 14
	4, 5, 7

$\therefore$ HCF = $4 \times 2 = 8$

(d)

9	54, 72, 90
2	6, 8, 10
	3, 4, 5

$\therefore$ HCF = 9 × 2 = 18

(e)

8	32, 48, 56
	4, 6, 7

$\therefore$ HCF = 8

(f)

2	72,120,150
3	36, 60, 75
	12, 20, 25

$\therefore$ HCF = 2 × 3 =6

(g)

5	60, 90, 135
3	12, 18, 27
	4, 6, 9

$\therefore$ HCF = 15

(h)

4	64, 112,144
4	16, 28, 36
	4, 7, 9

$\therefore$ HCF = 4 × 4 = 16

3. First we subtract the respective remainders from the given numbers,

55 – 1 =54, 84 – 3= 81, 140 – 5 =135

Now HCF of 54, 81, 135

9	54, 81, 135
3	6, 9, 15
	2, 3, 5

HCF = 9 × 3

Greatest common divisor = 27

4. 220 – 4 = 216, 376 – 4= 372 424 – 4=420

Now HCF of 216, 372, 420

4	216, 372, 420
3	54, 93, 105
	18, 31, 35

HCF = 12

Greatest common Divisior =12

EXERCISE 5.2

1. (a)

```
287) 410    (1
    –287
     123 )287 (2
          246
          41) 123 (3
              123
               ×
```

∴ HCF of 287 and 410 = 41

(b)

```
418) 570    (1
    –418
     152 )418 (2
          304
          114  )152 (1
                114
                38 )114 (3
                    114
                     ×
```

∴ HCF of 418 and 570 = 38

(c)

```
144) 198    (1
    –144
     –54 )144 (2
          108
        36  ) 54 (1
              36
              18) 36 (2
                  36
                   ×
```

∴ HCF of 144 and 198 = 18

(d)

315) 567 (1
−315
252) 315 (1
252
63) 252 (4
252
×

$\therefore$ HCF of 315 and 567 = 63

(e) to **(h)** : Do it yourself.

(i) 216, 372, 420

216) 372 (1
−216
156) 216 (1
156
60) 156 (2
120
36) 60 (1
36
24) 36 (1
24
12) 24 (2
24
×

Now H.C.F of 12 and 420

12) 420 (35
−36
60
60
×

$\therefore$ H.C.F of 216, 372, 420 = 12

(j) 225, 425, 340

```
225) 340    (1
    -225
     115 )225 (1
          115
          110 )115 ( 1
               110
                 5)110 (22
                    10
                    10
                    10
                    ×
```

Now H.C.F of 5 and 425

```
 5 ) 425 (85
    -40
      25
      25
      ×
```

∴ H.C.F of 225, 425, 340 = 5

(k) to **(n)** : Do it yourself.

2. Greatest capacity = Greatest common factor of 96,120,144

```
96 ) 120 ( 1
    -96
     24) 96 (4
         96
         ×
```

```
24 ) 144 ( 6
    -144
      ×
```

∴ Greatest capacity = 24 litres

3. HCF of 5.60, 4.20, 3.50 (m)

or HCF of 560, 420, 350 (cm)

```
350 ) 420 ( 1
    –350
    ----
     70 ) 350 ( 5
          350
          ---
            ×
```

```
70 ) 560 ( 8
   –560
   ----
    ×
```

∴ HCF =70

Hence, length of longest rod = 70 cm

4. Greatest common factor of 351 and 837

```
351 ) 837 ( 2
    –702
    ----
    135 ) 351 ( 2
          270
          ---
           81 ) 135 ( 1
                81
                --
                54 ) 81 ( 1
                     54
                     --
                     27 ) 54 ( 2
                          54
                          --
                           ×
```

∴ Greatest no. of marbles =27

5. HCF of 144 and 198

```
144) 198 (2
    –144
      54 )144 (2
          108
           36 ) 54 (1
                36
                18 ) 36 (2
                     36
                      ×
```

∴ Maximum length of each piece =18 cm

6. HCF of 867 and 680

```
680) 867 (1
     680
     187 )680 (3
          561
          119 )187 (1
               119
                68 )119 (1
                     68
                     51 ) 68 (1
                          51
                          17 ) 51 (3
                               51
                                ×
```

∴ Maximum length of each piece =17 litres

7. HCF of 250 and 75

$$
\begin{array}{r|l}
75 \overline{)\ 250\ } & 3 \\
-225 & \\
\hline
25 \overline{)\ 75\ } & 3 \\
75 & \\
\hline
\times &
\end{array}
$$

∴ No of square shaped handkerchiefs = 25

8. HCF of 126, 112 and 84

$$
\begin{array}{r|l}
84 \overline{)\ 112\ } & 1 \\
-84 & \\
\hline
28 \overline{)\ 84\ } & 3 \\
84 & \\
\hline
\times &
\end{array}
\qquad\qquad
\begin{array}{r|l}
28 \overline{)\ 126\ } & 4 \\
112 & \\
\hline
14 \overline{)\ 28\ } & 2 \\
28 & \\
\hline
\times &
\end{array}
$$

HCF = 14

∴ Greatest no. of Students = 14

9. HCF of 33m and 14.30 m

or HCF of 3300 cm and 1430 cm

$$
\begin{array}{r|l}
1430 \overline{)\ 3300\ } & 2 \\
2860 & \\
\hline
440 \overline{)\ 1430\ } & 3 \\
1320 & \\
\hline
110 \overline{)\ 440\ } & 4 \\
440 & \\
\hline
\times &
\end{array}
$$

∴ Side of greatest square tile =110 cm = 1 m 10 cm

EXERCISE 5.3

1. **(a)**

2	4, 6
2	2, 3
3	1, 3
	1, 1

LCM = 2 × 2 × 3 = 12

(b)

2	6, 8
2	3, 4
2	3, 2
3	3, 1
	1, 1

LCM = 2 × 2 × 2 × 3 = 24

(c)

2	6, 10
3	3, 5
5	1, 5
	1, 1

LCM = 2 × 3 × 5 = 30

(d)

2	8, 10
2	4, 5
2	2, 5
5	1, 5
	1, 1

LCM = 2 × 2 × 2 × 5 = 40

(e)

2	8, 12
2	4, 6
2	2, 3
3	1, 3
	1, 1

LCM = 2 × 2 × 2 × 3 = 24

(f) to **(o)** : Do it yourself.

(p)

5	25, 40, 60
4	5, 8, 12
	5, 2, 3

LCM = 2 × 3 × 4 × 5 × 5 = 600

(q)

7	28, 42, 63
3	4, 6, 9
2	4, 2, 3
	2, 1, 3

LCM = 2 × 2 × 3 × 3 × 7 = 252

(r)

5	40, 45, 60
4	8, 9, 12
3	2, 9, 3
	2, 3, 1

LCM = 5 × 4 × 3 × 3 × 2 = 360

(s)

2	24, 36, 54
3	12, 18, 27
3	4, 6, 9
2	4, 2, 3
	2, 1, 3

LCM = 2 × 2 × 2 × 3 × 3 ×3= 216

(t)

15	30, 45, 75
	2, 3, 5

LCM = 2 × 3 × 5 × 15 = 450

(u) to **(y)** : Do it yourself.

2.

18	18, 25
25	1, 25
	1, 1

LCM = 18 × 25 = 450

3. LCM of 20, 36 and 45

2	20, 36, 45
2	10, 18, 45
5	5, 9, 45
9	1, 9, 9
	1, 1, 1

LCM = 2 × 2 × 5 × 9 =180

4. LCM of 21, 35 and 63

7	21, 35, 63
3	3, 5, 9
	1, 5, 3

LCM = 3 × 3 × 5 × 7 =315

Required no. = their LCM + 8

= 315 + 8

= 323

5. LCM of 16, 25 and 40

4	16, 25, 40
2	4, 25, 10
5	2, 25, 5
	2, 5, 1

LCM = 2 × 2 × 4 × 5 × 5 = 400

∴ Required no. = their LCM + 5

= 400 + 5

= 405

EXERCISE 5.4

1. (a) First we find the HCF of 90, 120, 150

$$
\begin{array}{r|l}
90 \,\overline{)\,120\,}\,(1 & \\
-90 & \\
30\,\overline{)\,90\,}\,(3 & \\
90 & \\
\times &
\end{array}
\qquad
\begin{array}{l}
30\,\overline{)\,150\,}\,(5 \\
150 \\
\times
\end{array}
$$

HCF = 30

∴ To Find LCM of 90, 120, 150 we divide all these nos. by 30.

30	90, 120, 150
	3, 4, 5

LCM = 30 × 3 × 4 × 5 = 1800

(b) HCF of 126, 144, 180

$$
\begin{array}{l}
126\,\overline{)\,144\,}\,(1 \\
126 \\
18\,\overline{)\,126\,}\,(7 \\
126 \\
\times
\end{array}
\qquad
\begin{array}{l}
18\,\overline{)\,180\,}\,(10 \\
180 \\
\times
\end{array}
$$

HCF = 18

so,

18	126, 144, 180
2	7, 8, 10
	7, 4, 5

LCM = 18 × 2 × 7 × 4 × 5 = 5040

(c) HCF of 192, 216, 336

$$
\begin{array}{l}
192\,\overline{)\,216\,}\,(1 \\
192 \\
24\,\overline{)\,192\,}\,(8 \\
192 \\
\times
\end{array}
\qquad
\begin{array}{l}
24\,\overline{)\,336\,}\,(14 \\
24 \\
96 \\
96 \\
\times
\end{array}
$$

HCF =24

so,

24	192, 216, 336
2	8, 9, 14
	4, 9, 7

LCM = 24 × 2 × 4 × 9 × 7 = 12096

(d) HCF of 225, 300, 375

$225\overline{)300}\,(1$ $\quad$ $75\overline{)375}\,(5$

$225\overline{)75}\,(3$

$\times$ $\quad$ $\times$

HCF =75

75	225, 300, 375
2	3, 4, 5

LCM = 75 × 3 × 4 × 5 = 4500

(e) to **(j)** : Do it yourself.

2. Product of two nos. = HCF × LCM

$150 = 3 \times \text{LCM}$

$\text{LCM} = \frac{150}{3} = 50$

3. $3375 = 15 \times \text{LCM}$

$\text{LCM} = \frac{3375}{15} = 225$

4. $480 = \text{HCF} \times 80$

$\text{HCF} = \frac{480}{80} = 6$

5. $25 \times \text{other no.} = 5 \times 200$

$\text{other no} = \frac{5 \times 200}{25} = 40$

6. LCM of 10, 15, 20

5	10, 15, 20
2	2, 3, 4
	1, 3, 2

LCM = 2 × 2 × 3 × 5

= 60 minutes

or = 1 hour

The bells will next ring together at

7 : 00 a.m. + 1 hour

= 8.00 a.m

7. LCM of 25 and 30

5	25, 30
	5, 6

LCM = 5 × 5 × 6

= 150 seconds

= 2 minutes 30 sec.

They will light again together at

6 a.m. + 2 min + 30 sec

= 6 : 2 : 30

8. LCM of 12, 18, 30

2	12, 18, 30
3	6, 9, 15
	2, 3, 5

LCM = 2 × 2 × 3 × 3 × 5

= 180

So, min no. of marbles = 180 marbles

9. LCM of 30, 36, 42

3	30, 36, 42
2	10, 12, 14
	5, 6, 7

LCM = 2 × 3 × 5 × 6 ×7

= 1260 cm

or = 12.60 m

or = 12 m 60 cm

10. LCM of 45, 50, 54

9	45, 50, 54
5	5, 50, 6
2	1, 10, 6
	1, 5, 3

LCM = 2 × 3 × 5 × 5 ×9

= 1350 sec

To meet again double the circle

So, 1350 × 2 = 2700 sec

= 45 minutes

6. OPERATIONS ON COMMON FRACTIONS

EXERCISE 6.1

1. (a) $\frac{3}{7} + \frac{5}{14} = \frac{3 \times 2 + 5 \times 1}{14} = \frac{6 + 5}{14} = \frac{11}{14}$

(b) $\frac{1}{8} + \frac{5}{32} = \frac{4 \times 1 + 5 \times 1}{32} = \frac{4 + 5}{32} = \frac{9}{32}$

(c) $\frac{7}{12} + \frac{13}{18} = \frac{7 \times 3 + 13 \times 2}{36} = \frac{21 + 26}{36} = \frac{47}{36} = 1\frac{11}{36}$

(d) $\frac{3}{10} + \frac{2}{15} + \frac{7}{18} = \frac{3 \times 9 + 2 \times 6 + 7 \times 5}{90}$

$= \frac{27 + 12 + 35}{90}$

$= \frac{74}{90}$

(e) $1\frac{1}{2} + 1\frac{2}{3} + 1\frac{1}{4} = \frac{3}{2} + \frac{5}{3} + \frac{5}{4}$

$= \frac{6 \times 3 + 5 \times 4 + 5 \times 3}{12}$

$= \frac{18 + 20 + 15}{12}$

$= \frac{53}{12} = 4\frac{5}{12}$

(f) $1\frac{3}{8} + \frac{11}{12} + 1\frac{5}{6} = \frac{11}{8} + \frac{11}{12} + \frac{11}{6}$

$= \frac{11 \times 3 + 11 \times 2 + 11 \times 4}{24}$

$= \frac{33 + 22 + 44}{24}$

$= \frac{99}{24} = \frac{33}{8} = 4\frac{1}{8}$

(g) $2\frac{3}{4} + 1\frac{2}{3} + \frac{4}{5} = \frac{11}{4} + \frac{5}{3} + \frac{4}{5}$

$= \frac{15 \times 11 + 5 \times 20 + 4 \times 12}{60}$

$= \frac{165 + 100 + 48}{60}$

$$= \frac{313}{60} = 5\frac{13}{60}$$

(g) $\frac{3}{4} + \frac{1}{6} + \frac{7}{8} = \frac{6 \times 3 + 1 \times 4 + 7 \times 3}{24}$

$$= \frac{18 + 4 + 21}{24}$$

$$= \frac{43}{24} = 1\frac{19}{24}$$

(i) $1\frac{8}{15} + 2\frac{7}{10} + \frac{3}{5} = \frac{23}{15} + \frac{27}{10} + \frac{3}{5}$

$$= \frac{23 \times 2 + 27 \times 3 + 3 \times 6}{30}$$

$$= \frac{46 + 81 + 18}{30}$$

$$= \frac{145}{30} = \frac{29}{6} = 4\frac{5}{6}$$

(j) $2\frac{1}{4} + 1\frac{3}{5} + 2\frac{1}{2} = \frac{9}{4} + \frac{8}{5} + \frac{5}{2}$

$$= \frac{9 \times 5 + 8 \times 4 + 5 \times 10}{20}$$

$$= \frac{45 + 32 + 50}{20}$$

$$= \frac{127}{20} = 6\frac{7}{20}$$

2. (a) $\frac{7}{8} - \frac{5}{6} = \frac{7 \times 6 - 5 \times 8}{48}$

$$= \frac{42 - 40}{48} = \frac{2}{48} = \frac{1}{24}$$

(b) $\frac{3}{4} - \frac{2}{5} = \frac{3 \times 5 - 2 \times 4}{20}$

$= \frac{15 - 8}{20} = \frac{7}{20}$

(c) $\frac{5}{6} - \frac{4}{5} = \frac{5 \times 5 - 4 \times 6}{30}$

$= \frac{25 - 24}{30} = \frac{1}{30}$

(d) $\frac{3}{4} - \frac{2}{3} = \frac{3 \times 3 - 2 \times 4}{12}$

$= \frac{9 - 8}{12} = \frac{1}{12}$

(e) $\frac{7}{12} - \frac{3}{8} = \frac{7 \times 2 - 3 \times 3}{24}$

$= \frac{14 - 9}{24} = \frac{5}{24}$

(f) $2\frac{1}{3} - 1\frac{3}{4} = \frac{7}{3} - \frac{7}{4}$

$= \frac{7 \times 4 - 7 \times 3}{12}$

$= \frac{28 - 21}{12} = \frac{7}{12}$

(g) $4\frac{3}{4} - 3\frac{5}{6} = \frac{19}{4} - \frac{23}{6}$

$= \frac{19 \times 6 - 23 \times 4}{24}$

$= \frac{114 - 92}{24} = \frac{22}{24} = \frac{11}{12}$

(h) $4\frac{3}{5} - 2\frac{7}{15} = \frac{23}{5} - \frac{37}{15}$

$$= \frac{23 \times 3 - 37 \times 1}{15}$$

$$= \frac{69 - 37}{15} = \frac{32}{15} = 2\frac{2}{15}$$

(i) $7 - 4\frac{2}{5} = \frac{7}{1} - \frac{22}{5}$

$$= \frac{7 \times 5 - 22 \times 1}{5}$$

$$= \frac{35 - 22}{5} = \frac{13}{5} = 2\frac{3}{5}$$

(j) $5\frac{3}{5} - 2\frac{3}{4} = \frac{28}{5} - \frac{11}{4}$

$$= \frac{28 \times 4 - 11 \times 5}{20}$$

$$= \frac{112 - 55}{20} = \frac{57}{20} = 2\frac{17}{20}$$

EXERCISE 6.2

1. (a) $5 \times \frac{1}{2} = \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$

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

(b) $4 \times \frac{1}{3} = \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$

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

(c) $6 \times \frac{2}{7} = \frac{2}{7} + \frac{2}{7} + \frac{2}{7} + \frac{2}{7} + \frac{2}{7} + \frac{2}{7}$

$$= \frac{2 + 2 + 2 + 2 + 2 + 2}{7} = \frac{12}{7} = 1\frac{5}{7}$$

(d) $7 \times \frac{2}{3} = \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3}$

$$= \frac{2 + 2 + 2 + 2 + 2 + 2 + 2}{3} = \frac{14}{3} = 4\frac{2}{3}$$

(e) $8 \times \frac{3}{5} = \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5}$

$$= \frac{3 + 3 + 3 + 3 + 3 + 3 + 3 + 3}{5} = \frac{24}{5} = 4\frac{4}{5}$$

2. $3 \times \frac{3}{4} = \frac{9}{4} = 2\frac{1}{4}$

3. (a) $3 \times \frac{5}{6} = \frac{15}{6} = \frac{5}{2} = 2\frac{1}{2}$

(b) $4 \times \frac{3}{8} = \frac{12}{8} = \frac{3}{2} = 1\frac{1}{2}$

(c) $6 \times \frac{2}{3} = \frac{12}{3} = 4$

(d) $7 \times \frac{3}{14} = \frac{3}{2} = 1\frac{1}{2}$

(e) $16 \times \frac{3}{64} = \frac{3}{4}$

4. (a) $4 \times 1\frac{1}{3} = 4 \times \frac{4}{3} = \frac{16}{3} = 5\frac{1}{3}$

(b) $3 \times 1\frac{5}{6} = 3 \times \frac{11}{6} = \frac{11}{2} = 5\frac{1}{2}$

(c) $4 \times 2\frac{1}{2} = 4 \times \frac{5}{2} = 2 \times 5 = 10$

(d) $8 \times 3\frac{1}{3} = 8 \times \frac{10}{3} = \frac{80}{3} = 26\frac{2}{3}$

(e) $3 \times 1\frac{1}{9} = 3 \times \frac{10}{3} = \frac{30}{9} = \frac{10}{3} = 3\frac{1}{3}$

5. (a) $\frac{2}{3} \times 5 = \frac{10}{3} = 3\frac{1}{3}$

(b) $2\frac{1}{2} \times 5 = \frac{5}{2} \times 5 = \frac{25}{2} = 12\frac{1}{2}$

(c) $3\frac{1}{4} \times 8 = \frac{13}{4} \times 8 = 13 \times 2 = 26$

(d) $5\frac{2}{3} \times 6 = \frac{17}{3} \times 6 = 17 \times 2 = 34$

(e) $4\frac{2}{15} \times 20 = \frac{62}{15} \times 20 = \frac{248}{3} = 82\frac{2}{3}$

EXERCISE 6.3

1. (a) $\frac{1}{2}$ of $4 = \frac{1}{2} \times 4 = 2$

(b) $\frac{1}{3}$ of $5 = \frac{1}{3} \times 5 = \frac{5}{3} = 1\frac{2}{3}$

(c) $\frac{2}{3}$ of $\frac{4}{5} = \frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$

(d) $\frac{3}{4}$ of $\frac{5}{6} = \frac{3}{4} \times \frac{5}{6} = \frac{5}{8}$

(e) $\frac{2}{3}$ of $\frac{3}{4} = \frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$

(f) $\frac{2}{5} \times \frac{7}{8} = \frac{7}{20}$

(g) $\frac{3}{4} \times \frac{4}{5} = \frac{3}{5}$

(h) $\frac{3}{5} \times \frac{7}{8} = \frac{21}{40}$

(i) $\frac{8}{13} \times \frac{26}{17} = \frac{8 \times 2}{17} = \frac{16}{17}$

(j) $\frac{5}{7} \times \frac{35}{13} = \frac{5 \times 5}{13} = \frac{25}{13} = 1\frac{12}{13}$

2. (a) $\frac{3}{4} \times \frac{8}{9} \times \frac{27}{32} = \frac{3 \times 8 \times 27^{3}}{4 \times 9 \times 32_{4}}$

$= \frac{3 \times 3}{4 \times 4} = \frac{9}{16}$

(b) $\frac{2}{3} \times \frac{9}{16} \times \frac{8}{32} = \frac{2 \times 9 \times 8}{3 \times 16_{2} \times 27_{3}}$

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

(c) $\frac{12}{25} \times \frac{75}{48} \times \frac{17}{35} = \frac{12 \times 75^{3} \times 17}{25 \times 48_{4} \times 35}$

$= \frac{3 \times 17}{4 \times 35} = \frac{51}{140}$

(d) $\frac{21}{52} \times \frac{39}{56} \times \frac{24}{27} = \frac{21^{7} \times 39^{3} \times 24^{3}}{52_{4} \times 56_{7} \times 27_{9}}$

$= \frac{7 \times 3 \times 3}{4 \times 7 \times 9} = \frac{3 \times 3}{4 \times 9} = \frac{1}{4}$

3. (a) $1\frac{1}{4} \times 2\frac{2}{5} = \frac{5}{4} \times \frac{12}{5}$

$= \frac{5 \times 12^{3}}{4 \times 5} = 3$

(b) $3\frac{3}{8} \times 4\frac{4}{9} = \frac{27}{8} \times \frac{40}{9}$

$= \frac{27^{3} \times 40^{5}}{8 \times 9} = 3 \times 5 = 15$

(c) $5\frac{1}{7} \times 5\frac{4}{9} = \frac{36}{7} \times \frac{49}{9}$

$$= \frac{36^{3} \times 49^{7}}{4 \times 9} = 4 \times 7 = 28$$

(d) $2\frac{1}{12} \times 2\frac{2}{9} = \frac{25}{12_{3}} \times \frac{20^{5}}{9}$

$$= \frac{25 \times 5}{3 \times 9} = \frac{125}{27} = 4\frac{17}{27}$$

(e) $2\frac{6}{7} \times 2\frac{3}{16} \times 1\frac{3}{5} = \frac{20}{7} \times \frac{35}{16} \times \frac{8}{5}$

$$= \frac{20 \times 35^{7} \times 8}{7 \times 16_{2} \times 5} = \frac{20}{2} = 10$$

(f) $2\frac{2}{5} \times 2\frac{2}{3} \times 8\frac{1}{3} = \frac{12}{5} \times \frac{8}{3} \times \frac{25}{3}$

$$= \frac{12^{4} \times 8 \times {}^{5}25}{5 \times 3 \times 3}$$

$$= \frac{4 \times 8 \times 5}{3} = \frac{160}{3} = 53\frac{1}{3}$$

(g) $1\frac{11}{15} \times 1\frac{5}{13} \times \frac{25}{54} = \frac{26}{15} \times \frac{18}{13} \times \frac{25}{54}$

$$= \frac{26^{2} \times 18 \times {}^{5}25}{15_{3} \times 13 \times {}_{3}54}$$

$$= \frac{2 \times 5}{3 \times 3} = \frac{10}{9} = 1\frac{1}{9}$$

(h) $2\frac{4}{25} \times 1\frac{7}{48} \times 1\frac{4}{11} = \frac{54}{25} \times \frac{55}{48} \times \frac{15}{11}$

$$= \frac{54^{9} \times 55^{5} \times {}^{3}15}{25_{5} \times 48_{8} \times 11} = \frac{9 \times 5 \times 3}{5 \times 8}$$

$$= \frac{9 \times 3}{8} = \frac{27}{8} = 3\frac{3}{8}$$

EXERCISE 6.4

1. (a) $\frac{1}{7}$ **(b)** $\frac{1}{8}$ **(c)** $\frac{1}{6}$ **(d)** $\frac{1}{10}$ **(e)** 4 **(f)** 9 **(g)** $\frac{20}{13}$ **(h)** $\frac{14}{3}$ **(i)** 1 **(j)** 1 **(k)** 1 **(l)** 1.

2. (a) Multiplicative inverse of 15 = $\frac{1}{15}$

(b) Multiplicative inverse of $\frac{1}{13}$ = 13

(c) Multiplicative inverse of $\frac{10}{3} = \frac{3}{10}$

(d) Multiplicative inverse of $3\frac{1}{5}\left(\frac{16}{5}\right) = \frac{5}{16}$

(e) Multiplicative inverse of $6\frac{4}{7}\left(\frac{46}{7}\right) = \frac{7}{46}$

3. (a) $\frac{1}{4} \div 3 = \frac{1}{4} \times \frac{1}{3} = \frac{1}{12}$

(b) $\frac{1}{5} \div 5 = \frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$

(c) $\frac{1}{6} \div 3 = \frac{1}{6} \times \frac{1}{3} = \frac{1}{18}$

(d) $\frac{3}{4} \div 6 = \frac{3}{4} \times \frac{1}{6} = \frac{3}{24} = \frac{1}{8}$

(e) $\frac{10}{3} \div 5 = \frac{10}{3} \times \frac{1}{5} = \frac{2}{3}$

(f) $2\frac{1}{4} \div 9 = \frac{9}{4} \times \frac{1}{9} = \frac{1}{4}$

(g) $3\frac{1}{3} \div 5 = \frac{10}{3} \times \frac{1}{5} = \frac{2}{3}$

(h) $6\frac{1}{4} \div 25 = \frac{25}{4} \times \frac{1}{25} = \frac{1}{4}$

(i) $5\frac{2}{3} \div 34 = \frac{17}{3} \times \frac{1}{34} = \frac{1}{6}$

(j) $4\frac{3}{7} \div 62 = \frac{31}{7} \times \frac{1}{62} = \frac{1}{14}$

4. (a) $\frac{3}{4}$ by $3 = \frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$

(b) $\frac{8}{13}$ by $4 = \frac{8}{13} \times \frac{1}{4} = \frac{2}{13}$

(c) $\frac{26}{11}$ by $13 = \frac{26}{11} \times \frac{1}{13} = \frac{2}{11}$

(d) $\frac{28}{19}$ by $7 = \frac{28}{19} \times \frac{1}{7} = \frac{4}{19}$

(e) $\frac{8}{7}$ by $16 = \frac{8}{7} \times \frac{1}{16} = \frac{1}{14}$

EXERCISE 6.5

1. (a) $3 \div \frac{3}{7} = 3 \times \frac{7}{3} = 7$

(b) $6 \div \frac{1}{6} = 3 \times 6 = 36$

(c) $16 \div \frac{8}{9} = 16 \times \frac{9}{8} = 18$

(d) $15 \div \frac{3}{4} = 15 \times \frac{4}{3} = 20$

(e) $35 \div \frac{14}{3} = 35 \times \frac{3}{14} = \frac{5 \times 3}{2} = \frac{15}{2} = 7\frac{1}{2}$

(f) $42 \div 3\frac{1}{2} = 42 \div \frac{7}{2}$

$= 42 \times \frac{2}{7} = 12$

(g) $45 \div 7\frac{1}{2} = 45 \div \frac{15}{2}$

$= 45 \times \frac{2}{15} = 3 \times 2 = 6$

(h) $25 \div 3\frac{3}{4} = 25 \div \frac{15}{4}$

$= 25 \times \frac{4}{15} = \frac{5 \times 4}{3} = \frac{20}{3} = 6\frac{2}{3}$

(i) $12 \div 2\frac{2}{3} = 12 \div \frac{8}{3}$

$= 12 \times \frac{3}{8} = \frac{3 \times 3}{2} = \frac{9}{2} = 4\frac{1}{2}$

(j) $49 \div 6\frac{1}{8} = 49 \div \frac{49}{8}$

$= 49 \times \frac{8}{49} = 8$

2. (a) $\frac{1}{3} \div \frac{1}{5} = \frac{1}{3} \times 5 = \frac{5}{3} = 1\frac{2}{3}$

(b) $\frac{1}{2} \div \frac{1}{4} = \frac{1}{2} \times 4 = 2$

(c) $\frac{9}{14} \div \frac{3}{35} = \frac{\cancel{9}^{3}}{\cancel{14}_{2}} \times \frac{\cancel{35}^{5}}{\cancel{3}} = \frac{3 \times 5}{2} = \frac{15}{2} = 7\frac{1}{2}$

(d) $\frac{7}{11} \div \frac{42}{55} = \frac{\cancel{7}^{2}}{\cancel{11}} \times \frac{\cancel{55}^{5}}{\cancel{42}_{6}} = \frac{5}{6}$

(e) $\frac{17}{3} \div \frac{1}{6} = \frac{17}{3} \times 6 = 34$

3. (a) $2\frac{1}{5} \div \frac{1}{10} = \frac{11}{5} \div \frac{1}{10}$

$= \frac{11}{5} \times 10 = 22$

(b) $4\frac{2}{3} \div \frac{1}{9} = \frac{14}{3} \div \frac{1}{9}$

$= \frac{14}{3} \times \frac{9}{1} = 42$

(c) $8\frac{4}{5} \div \frac{4}{25} = \frac{44}{5} \div \frac{4}{25}$

$= \frac{\cancel{44}^{11}}{\cancel{5}} \times \frac{\cancel{25}^{5}}{\cancel{4}}$

$= 11 \times 5 = 55$

(d) $10\frac{2}{5} \div 3\frac{1}{4} = \frac{52}{5} \div \frac{13}{4}$

$= \frac{\cancel{52}^{4}}{\cancel{5}} \times \frac{4}{\cancel{13}}$

$= \frac{16}{5} = 3\frac{1}{5}$

(e) $6\frac{5}{14} \div 5\frac{9}{16} = \frac{89}{14} \div \frac{89}{16}$

$$= \frac{\cancel{89}}{\cancel{14}_{7}} \times \frac{\cancel{16}^{8}}{\cancel{89}}$$

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

4. (a) $\frac{4}{5}$ **(b)** 1 **(c)** $5\frac{1}{2}$ **(d)** 0 **(e)** 1 **(f)** 1 **(g)** $7\frac{5}{11}$ **(h)** $16\frac{2}{3}$

EXERCISE 6.6

1. Weight of empty tin $= 16\frac{1}{5} - 14\frac{3}{4}$

$$= \frac{81}{5} - \frac{59}{4} = \frac{(81 \times 4) - (59 \times 5)}{20}$$

$$= \frac{324 - 295}{20} = \frac{29}{20} = 1\frac{9}{20}$$

2. Total cloth = 7 metres

Used for curtain $= 2\frac{1}{2}$ metres

Used for sheet $= 1\frac{3}{5}$ metres

Cloth left $= 7 - \left(2\frac{1}{2} + 1\frac{3}{5} \right)$

$$= 7 - \left(\frac{5}{2} + \frac{8}{5} \right)$$

$$= 7 - \left(\frac{25 + 16}{10} \right)$$

$$= 7 - \left(\frac{41}{10} \right)$$

$$= \frac{70 - 41}{10} = \frac{29}{10} = 2\frac{9}{10} \text{ metres}$$

3. $\frac{2}{5}$ of a can for = 1 wall

or 1 wall needed = $\frac{2}{5}$ of a can

So, 10 walls needed = $\frac{2}{5} \times 10 = 4$ cans

4. 1 bowl = 9 servings

$\frac{3}{4}$ bowl = $\frac{9}{3/4}$ servings

$= \frac{4}{3} \times 9 = 12$ servings

5. $5\frac{1}{9}l$ or $\frac{46}{9}$ litre kerosene costs = ₹92

Then 1 litre kerosene costs = $₹\frac{92}{\frac{46}{9}}$

$= ₹\left(92^{2} \times \frac{9}{46}\right) = ₹18$

6. After reading $\frac{2}{3}$ of a book, 60 pages are left.

That means $\frac{1}{3}$ of book = 60 pages

or 1 book = 60 × 3 = 180 pages

7. 1 metre of cloth costs = $₹32\frac{1}{2} = ₹\frac{65}{2}$

$\therefore\ 3\frac{1}{5}\left(\frac{16}{5}\right)$ metre cloth costs = ₹$\left(\frac{65}{2} \times \frac{16}{5}\right)$

= ₹(13 × 8) = ₹104

8. Andy ate = $\frac{3}{4}$ of $\frac{7}{8}$

$= \frac{3}{4} \times \frac{7}{8} = \frac{21}{32}$ part

9. No. of shirts $= 20\frac{1}{4} \div 2\frac{1}{4}$

$= \frac{81}{4} \div \frac{9}{4}$

$= \frac{81}{4} \times \frac{4}{9} = 9$ shirts

10. Total land = 1

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

So, remaining $= 1 - \frac{1}{3} = \frac{2}{3}$

Man gave $\frac{1}{3}$ of (remaining) to his son and daughter each.

That means $\frac{1}{3}$ of $\frac{2}{3} = \frac{1}{3} \times \frac{2}{3} = \frac{2}{9}$

i.e. $\frac{2}{9}$ to son and $\frac{2}{9}$ to daughter

So, land left with him $= 1 - \frac{1}{3} - \frac{2}{9} - \frac{2}{9}$

$= 1 - \left(\frac{1}{3} + \frac{2}{9} + \frac{2}{9}\right)$

$= 1 - \left(\frac{3 + 2 + 2}{9}\right)$

$= 1 - \frac{7}{9}$

$$= \frac{9 - 7}{9} = \frac{2}{9}$$

11. Other fraction $= 15\frac{3}{10} \div 6\frac{4}{5}$

$$= \frac{153}{10} \div \frac{34}{5} = \frac{\cancel{153}^{9}}{\cancel{10}_{2}} \times \frac{\cancel{5}}{\cancel{34}_{2}}$$

$$= \frac{9}{4} = 2\frac{1}{4}$$

EXERCISE 6.7

1. (a) $\frac{79}{91} = \frac{10}{13}$ $= 10 : 13$

(b) $\frac{80 \text{ cm}}{2 \text{ m}} = \frac{80 \text{ cm}}{200\text{cm}} = \frac{2}{5}$ $= 2 : 5$

(c) $\frac{75 \text{ cm}}{1 \text{ m}} = \frac{75 \text{ cm}}{100\text{cm}} = \frac{3}{4}$ $= 3 : 4$

(d) $\frac{500 \text{ g}}{3 \text{ kg}} = \frac{500 \text{ g}}{3000 \text{ g}} = \frac{1}{6}$ $= 1 : 6$

(e) $\frac{1l\ 500ml}{2\ l} = \frac{1500\ ml}{2000\ ml} = \frac{15}{20} = \frac{3}{4}$ $= 3 : 4$

(f) $\frac{15 \text{ min}}{1\ hour} = \frac{15 \text{ min}}{60 \text{ min}} = \frac{1}{4}$ $= 1 : 4$

(g) $\frac{1 \text{ kg}}{400 \text{ g}} = \frac{1000 \text{ g}}{400 \text{ g}} = \frac{10}{4}$ $= 5 : 2$

(h) $\frac{1 \text{ m}}{70 \text{ cm}} = \frac{100 \text{ cm}}{70 \text{ cm}} = \frac{10}{7}$ $= 10 : 7$

2. Ratio $= \frac{\text{No. of boys}}{\text{No. of girls}} = \frac{20}{24} = \frac{5}{6} = 5 : 6$

3. Ratio of heights = $\frac{9\text{ m}}{12\text{m}} = \frac{3}{4} = 3 : 4$

4. Earings = ₹20,000

Savings= ₹5000

$\therefore$ Expenditures = ₹ 20,000 – ₹5000 = ₹15000

(a) Ratio $= \frac{\text{earning}}{\text{saving}} = \frac{20,000}{5,000} = \frac{4}{1} = 4 : 1$

(b) Ratio $= \frac{\text{saving}}{\text{expenditure}} = \frac{5,000}{15,000} = \frac{1}{3} = 1 : 3$

5. Ratio $= \frac{\text{no. of teachers}}{\text{no. of students}} = \frac{57}{1900} = \frac{3}{100} = 3 : 100$

6. Games won = 6 games

Games lost = 3 games

Total games = 9 games

(a) Ratio $= \frac{\text{games lost}}{\text{games won}} = \frac{3}{6} = \frac{1}{2} = 1 : 2$

(b) Ratio $= \frac{\text{games won}}{\text{games played}} = \frac{6}{9} = \frac{2}{3} = 2 : 3$

7. (a) Ratio $= \frac{\text{No. of girls}}{\text{No. of boys}} = \frac{400}{350} = \frac{8}{7} = 8 : 7$

(b) Ratio $= \frac{\text{No. of boys}}{\text{No. of girls}} = \frac{350}{400} = \frac{7}{8} = 7 : 8$

8. (a) Length of room = 2 × its breadth

$\frac{\text{Length of room}}{\text{Breadth of room}} = \frac{2}{1} = 2 : 1$

(b) No. of girls = 3 × No. of boys

$= \frac{\text{No. of girls}}{\text{No. of boys}} = \frac{3}{1} = 3 : 1$

9. Ratio = 3 : 2

Sum of terms = 3 + 2 = 5

Kate's share = $\frac{3}{5}$ × (₹5000) = 3000

Celia's share = $\frac{2}{5}$ × (₹5000) = ₹2000

10. Ratio = $\frac{\text{No. of holidays}}{\text{No. of days in year}}$

= $\frac{146}{365} = \frac{2}{5}$ = 2 : 5

7. DECIMAL FRACTIONS

EXERCISE 7.1

1. (a) 8 + 0·7 +0·09 + 0·005; 8 + $\frac{7}{10}$ + $\frac{9}{100}$ + $\frac{5}{1000}$

(b) 20 + 7 +0·03 + 0·004; 20 + 7 + $\frac{3}{100}$ + $\frac{5}{1000}$

(c) 20 + 5 + 0·9 + 0·006; 20 + 5 + $\frac{9}{10}$ + $\frac{6}{1000}$

(d) 200 + 80 + 5 + 0·8 + 0·08; 200+ 80 +5 + $\frac{8}{10}$ + $\frac{8}{100}$

(e) 90 + 8 + 0·3 ; 90 + 8 + $\frac{3}{10}$

2. (a) 5·36 (b) 7·204 (c) 4·072 (d) 0·976 (e) 43·57 (f) 29·411

3. (a) 7·591 (b)2·309 (c) 52·097 (d) 30·07 (e) 64·009 (f) 0·793

4. (a) 0.5 = 0.50 = 0·500 **(b)** 1.3 = 1.30 = 1·300

(c) 34.2 = 34.20 =34·200 **(d)** 0·3 = 0.30 = 0.300

(e) 3.7 = 3·70 = 3.700 **(f)** 68.3 = 68·30 = 68·300

5. **(a)** 7·40; 8·26; 9·30 **(b)** 24.400 ; 2·830; 0.734

(c) 2.680; 4.900; 7.072 **(d)** 9.20; 23.50; 0.12

(e) 8.360; 7.500; 2.003 **(f)** 12.840; 615312; 1.700

6. **(a)** 50.04 $\boxed{<}$ 50.4 **(b)** 7.7 $\boxed{>}$ 7.007

(c) 7.3 $\boxed{>}$ 7.268 **(d)** 0.4 $\boxed{>}$ 0.14

(e) 9.99 $\boxed{<}$ 9.999 **(f)** 5.081 $\boxed{>}$ 5.08

(g) 3.4 $\boxed{=}$ 3.400 **(h)** 0.2 $\boxed{>}$ 1.999

(i) 0.76 $\boxed{=}$ 0.760

7. **(a)** 1.019;1.09;1.9;1.91 **(b)** 2.37;2.7;3.01; 3.1

(c) 5;5.12;5.21;5.3 **(d)** 9.09; 9.9;10; 10.01

8. **(a)** 2.25;2.05;0.25;0.05 **(b)** 2.91;2.9; 2.09;2.019

(c) 1.1;1.09;1.01;0.99 **(d)** 19.99; 1.999;1.099;0.999

EXERCISE 7.2

1. **(a)** 0.3 **(b)** 0.52 **(c)** 0.09

(d) 0.25 **(e)** 0.137 **(f)** 1.17

(g) 2.009 **(h)** 56.5 **(i)** 1.203

(j) 15.17

2. (a) $\frac{4}{10}$ (b) $\frac{35}{100}$ (c) $\frac{742}{1000}$ (d) $1\frac{3}{100}$

(e) $\frac{4}{100}$ (f) $36\frac{90}{100}$ (g) $6\frac{104}{1000}$ (h) $37\frac{6}{1000}$

(i) $\frac{7}{1000}$ (j) $78\frac{67}{100}$

EXERCISE 7.3

1. (a)
$$\begin{array}{r} 3.4 \\ 5.9 \\ +6.7 \\ \hline 16.0 \end{array}$$

(b)
$$\begin{array}{r} 2.003 \\ 0.700 \\ +16.790 \\ \hline 19.493 \end{array}$$

(c)
$$\begin{array}{r} 1.650 \\ 1.605 \\ +16.500 \\ \hline 19.755 \end{array}$$

(d)
$$\begin{array}{r} 7.25 \\ 2.45 \\ +12.75 \\ \hline 22.45 \end{array}$$

(e)
$$\begin{array}{r} 9.85 \\ 0.61 \\ +0.40 \\ \hline 10.86 \end{array}$$

(f)
$$\begin{array}{r} 00.10 \\ 01.00 \\ +11.40 \\ \hline 12.50 \end{array}$$

(g)
$$\begin{array}{r} 12.01 \\ 1.10 \\ +1.98 \\ \hline 15.09 \end{array}$$

(h)
$$\begin{array}{r} 0.001 \\ 2.900 \\ +0.020 \\ \hline 2.921 \end{array}$$

(i)
$$\begin{array}{r} 28.101 \\ 0.056 \\ +61.780 \\ \hline 89.931 \end{array}$$

2. (a)
$$\begin{array}{r} 16.10 \\ -9.25 \\ \hline 6.85 \end{array}$$

(b)
$$\begin{array}{r} 18.50 \\ -16.75 \\ \hline 1.75 \end{array}$$

(c)
$$\begin{array}{r} 7.00 \\ -4.32 \\ \hline 2.68 \end{array}$$

3. (a)
$$\begin{array}{r} 12.35 \\ -7.00 \\ \hline 5.35 \end{array}$$

(b)
$$\begin{array}{r} 5.37 \\ -0.75 \\ \hline 4.62 \end{array}$$

(c)
$$\begin{array}{r} 11.01 \\ -10.11 \\ \hline 0.9 \end{array}$$

(d)
$$\begin{array}{r} 13.10 \\ -10.05 \\ \hline 3.05 \end{array}$$

(e)
$$\begin{array}{r} 8.050 \\ -4.352 \\ \hline 3.698 \end{array}$$

(f)
$$\begin{array}{r} 203.067 \\ -99.777 \\ \hline 103.283 \end{array}$$

EXERCISE 7.4

1. Do it yourself.

2. (a)
$$\begin{array}{r} 1.34 \\ \times 45 \\ \hline 670 \\ 5360 \\ \hline 60.30 \end{array}$$

(b)
$$\begin{array}{r} 4.5 \\ \times 69 \\ \hline 405 \\ 2700 \\ \hline 310.50 \end{array}$$

(c)
$$\begin{array}{r} 0.75 \\ \times 25 \\ \hline 375 \\ 1500 \\ \hline 18.75 \end{array}$$

(d)
$$\begin{array}{r} 4.6 \\ \times\ 8.7 \\ \hline 322 \\ 3680 \\ \hline 40.02 \end{array}$$

(e)
$$\begin{array}{r} 6.05 \\ \times\ 0.4 \\ \hline 2.420 \end{array}$$

(f)
$$\begin{array}{r} 25.36 \\ \times 7.3 \\ \hline 7608 \\ 177520 \\ \hline 185.128 \end{array}$$

(g)
$$\begin{array}{r} 5.01 \\ \times\ 3.3 \\ \hline 1503 \\ 15030 \\ \hline 16.533 \end{array}$$

(h)
$$\begin{array}{r} 2.25 \\ \times\ 7.5 \\ \hline 1125 \\ 15750 \\ \hline 16.875 \end{array}$$

(i)
$$\begin{array}{r} 1.04 \\ \times\ 5.4 \\ \hline 416 \\ 5200 \\ \hline 5.616 \end{array}$$

(j)
$$\begin{array}{r} 6.17 \\ \times\ 4.3 \\ \hline 1851 \\ 24680 \\ \hline 26.531 \end{array}$$

3. Given $87 \times 45 = 3915$

(a) $8.7 \times 4.5 = 39.15$ **(b)** $8.7 \times 45 = 391.5$

(c) $87 \times 4.5 = 391.5$ **(d)** $87 \times 0.45 = 39.15$

(e) $0.87 \times 4.5 = 3.915$

4. (a) $0.2 \times 0.3 \times 0.5$

$\because\ 2 \times 3 \times 5 = 30$

$\therefore\ 0.2 \times 0.3 \times 0.5 = 0.030$

(b) $\because\ 4 \times 5 \times 6 = 120$

$\therefore\ 0.4 \times 0.05 \times 0.6 = 0.0120$

(c) $\because\ 4 \times 5 \times 3 = 60$

$\therefore\ 0.04 \times 0.5 \times 3 = 0.060$

(d) $\because\ 7 \times 9 \times 1 = 63$

$\therefore\ 0.7 \times 0.9 \times 0.01 = 0.0063$

EXERCISE 7.5

1. (a)

```
      4.04
11 ) 44.44 (
     44
      4
      0
      44
      44
      ×
```

Q = 4.04

(b)

```
      17.06
8 ) 136.48 (
     8
     56
     56
      4
      0
      48
      48
      ×
```

Q = 17.06

(c)

```
      0.606
15 ) 9.090 (
     90
      9
      0
      90
      90
      ×
```

Q = 0.606

(d)

```
      1.04
13 ) 13.52 (
     13
      5
      0
      52
      52
      ×
```

Q = 1.04

(e)

$$\begin{array}{r} 3.050 \\ 5\overline{)15.15} \\ \underline{15} \\ 1 \\ \underline{0} \\ 15 \\ \underline{15} \\ \times \end{array}$$

Q = 3.05

(f)

$$\begin{array}{r} 6.204 \\ 85\overline{)527.34} \\ \underline{510} \\ 173 \\ \underline{170} \\ 34 \\ \underline{0} \\ 340 \\ \underline{340} \\ \times \end{array}$$

Q = 6.204

(g)

$$\begin{array}{r} 0.5 \\ 25\overline{)12.50} \\ \underline{125} \\ 0 \end{array}$$

Q = 0.5

(h)

$$\begin{array}{r} 0.072 \\ 14\overline{)1.00800} \\ \underline{98} \\ 28 \\ \underline{28} \\ \times \end{array}$$

Q = 0.072

2. (a) $2.1 \div 10 = \frac{2.1}{10} = 0.21$

(b) $\frac{25.34}{10} = 2.534$

(c) $\frac{0.56}{10} = 0.056$

(d) $\frac{148.67}{100} = 1.4867$

(e) $\frac{25.6}{1000} = 0.0256$

(f) $9.69 \div 1.9 = \frac{9.69}{1.9} = \frac{9.69 \times 10}{1.9 \times 10} = \frac{96.9}{19} = 5.1$

$$
\begin{array}{r}
5.1 \\
19\overline{)\,96.9\,(} \\
\underline{95} \\
19 \\
\underline{19} \\
\times
\end{array}
$$

(g) $2.52 \div 1.2 = \frac{2.52}{1.2} = \frac{2.52 \times 10}{1.2 \times 10} = \frac{25.2}{12} = 2.1$

$$
\begin{array}{r}
2.1 \\
12\overline{)\,25.2\,(} \\
\underline{24} \\
12 \\
\underline{12} \\
\times
\end{array}
$$

(h) $8.67 \div 0.24$

$= \frac{8.67}{0.24}$

$= \frac{8.67 \times 100}{0.24 \times 100} = \frac{867}{24} = 36.125$

$$
\begin{array}{r}
36.125 \\
24\overline{)\,867\,(} \\
\underline{72} \\
147 \\
\underline{144} \\
30 \\
\underline{24} \\
60 \\
\underline{48} \\
120 \\
\underline{120} \\
\times
\end{array}
$$

3. (a) $\frac{3.15}{1.5} = \frac{3.15 \times 10}{1.2 \times 10} = \frac{31.5}{15} = 2.1$

(b) $\frac{2.05}{2.5} = \frac{2.05 \times 10}{2.5 \times 10} = \frac{20.5}{25} = 0.82$

(c) $\frac{4.41}{2.1} = \frac{4.41 \times 10}{2.1 \times 10} = \frac{44.1}{21} = 2.1$

(d) $\frac{6.05}{2.5} = \frac{6.05 \times 10}{2.5 \times 10} = \frac{60.5}{25} = 2.42$

4. (a) $\frac{8}{0.4} = \frac{8 \times 10}{0.4 \times 10} = \frac{80}{4} = 20$

(b) $\frac{1}{0.5} = \frac{1 \times 10}{0.5 \times 10} = \frac{10}{5} = 2$

(c) $\frac{72}{0.144} = \frac{72 \times 1000}{0.144 \times 1000} = \frac{72000}{144} = 500$

(d) $\frac{3}{0.8} = \frac{3 \times 10}{0.8 \times 10} = \frac{30}{8} = 3.75$

(e) $\frac{7}{1.25} = \frac{7 \times 100}{1.25 \times 100} = \frac{700}{125} = 5.6$

(f) $\frac{3}{8} = 0.375$

(g) $\frac{9}{16} = 0.5625$

(h) $\frac{12}{8} = \frac{3}{2} = 1.5$

EXERCISE 7.6

1. Milkman had = 24.5 *l* of milk

He sold = 19.750 *l* of milk

Milk left = 24.500

$$\begin{array}{r} -\ 19.750 \\ \hline 4.750 \end{array}$$ letre

2. Travel by bus = 26.3 km

Travel by autorikshaw = 5.260 km

Travel by on foot = 0.350 km

Total distance in travelling =

$$\begin{array}{r} 26.300 \\ 5.260 \\ +\ 0.350 \\ \hline 31.910 \end{array}$$ km

3. 1 m of ribbon costs = ₹ 3.25

5.6m of ribbon costs = ₹ 3.25 × 5.6

= ₹ 18.20

4. 1 ring weighs = 5.016 gm

100 rings weighs = 5.016 × 100

= 501.6 gm

5. 19 tins contains = 313.5 litre of oil

1 tin contains = $\frac{313.5}{19}$ litre of oil

= 16.5 litre of oil

6. No. of dresses could be made = $\frac{7 \text{ m}}{1.75 \text{ m}}$

$$= \frac{7 \times 100}{1.75 \times 100}$$

$$= \frac{700}{175} = 4$$

7. 16.5 kg of rice in = 1 sack

1 kg of rice in = $\frac{1}{16.5}$ sack

313.5 kg of rice in = $\frac{313.5}{16.5}$ sacks = 19 sacks

8. In 1 hour distance covered = 84.25 km

In 14 hours distance covered = 84.25× 14

= 1179.50 km

EXERCISE 7.7

1. (a) 5.7 (Round off) = 6 **(b)** 7.3 (Round off) = 7

(c) 97.56 (Round off) =98 **(d)** 412.68 (Round off) =413

(e) 142.499(Round off) =142

2. (a) 1.35(Round off) =1.4 **(b)** 24.46(Round off) =24.5

(c) 46.234 (Round off) =46.2 **(d)** 414.072(Round off)=414.1

(e) 123.345 (Round off)= 123.3

3. (a) 1.234(Round off) =1.23**(b)** 6.765 (Round off) =6.77

(c) 43.123(Round off)=43.12 **(d)** 55.226 (Round off) = 55.23

(e) 636.299(Round off) =636.30

4. ∵ 1 kg apple costs = ₹ 27

∴ 2.55kg apple costs = ₹ 27 × 2.55

= ₹ 68.85 = ₹69 (approx)

REVISION TEST PAPER– I

1. (a) 3,01,00,279 **(b)** 94,10,00,035 **(c)** 50,44,09,008

(d) 8,30,16,214

2. (a) 10000000 + 800000 + 70000 + 2000 + 70 + 4

(b) 50000000 + 400000 + 30000 + 1000 + 80 + 9

(c) 500,000 + 70000 + 9000 + 300 + 90 + 2

(d) 2000000 + 700000 + 80000 + 8000 + 600 + 10 + 7

3. (a) 2,93,73,246 $\boxed{<}$ 2,93,89,845

(b) 36,463,209 $\boxed{>}$ 36,436,209

4. (a) 8,87,087; 8,78,807; 7,88,870

(b) 44,44,35,015; 44,43,45,105; 44,43,45,015

5. (a) 7,00,00,000 **(b)** 9,00,00,000 **(c)** 12,00,00,000

(d) 29,00,00,000

6. VIII, XII, XVII, XXXIX, LXXXIX, XCVIII, CXCIX, CCXVIII, DCXLVIII, DXCIII, DCLXVI, DCCLXXXIX

7. Do it yourself.

8. 192 × 125

= (200 – 8) × (100 + 25)

= (200 × 100) + (200 × 25) – (8 × 100) – (8 × 25)

= 20000 + 5000 – 800 – 200

= 25000 – 1000

= 24000

9.

Repair cost	=	₹ 356870
Painting cost	=	₹ 109400
Furniture cost	=	+ ₹ 264968
Total cost	=	₹ 731238

10. 6547832 + 3215387 – 4925466

(a)

$$\begin{array}{r} 6547832 \\ +\ 3215387 \\ \hline 9763219 \end{array} \qquad \begin{array}{r} 9763219 \\ -\ 4925466 \\ \hline 4837753 \end{array}$$

(b) 35012345 – 5645789 – 13254678

$$\begin{array}{r} 35012345 \\ -\ 5645789 \\ \hline 29366556 \end{array} \qquad \begin{array}{r} 29366556 \\ -13254678 \\ \hline 16111878 \end{array}$$

11. In one day sale of milk = 3456 litre

$\because$ Leap year has = 366 days

So, In 366 days sale of milk = 3456 × 366

= 1264896 litre

12.(a)

$$\begin{array}{r} 300 \\ \times 16 \\ \hline 1800 \\ 3000 \\ \hline 4800 \end{array}$$

(b)

$$\begin{array}{r} 400 \\ \times 60 \\ \hline 000 \\ 24000 \\ \hline 24000 \end{array}$$

13. 125 matchboxes in = 1 carton

1 matchbox in $= \frac{1}{125}$

827500 matchboxes in $= \frac{827500}{125}$ carton

= 6620 cartons

14. 489 × 362

On estimating = 500 × 400 = 200000

15. 80618

$\because$ (8 + 6 +8) = 22 ; 1 + 0 = 1

22 – 1 = 21

$\therefore$ It is not divisible by 11.

16.

2	224
2	112
2	56
2	28
2	14
7	7
	1

Prime factors = $2 \times 2 \times 2 \times 2 \times 2 \times 7$

17.

2	72,120,150
3	36, 60, 75
	12, 20, 25

$\therefore$ HCF = $2 \times 3 = 6$

18.

391) 425 (1
391
34) 391 (11
34
17) 34 (2
34
×

17) 527 (31
51
17
17
×

So, H.C.F of 391, 425, 527 = 17

19. HCF of 144 and 198

144) 198 (2
−144
54) 144 (2
108
36) 54 (1
36
18) 36 (2
36
×

$\therefore$ Maximum length of each piece =18 cm

20. LCM of 20, 36 and 45

2	20, 36, 45
2	10, 18, 45
5	5, 9, 45
9	1, 9, 9
	1, 1, 1

LCM = 2 × 2 × 5 × 9 =180

21.

2	24, 36, 54
3	12, 18, 27
3	4, 6, 9
2	4, 2, 3
	2, 1, 3

LCM = 2 × 2 × 2 × 3 × 3 ×3= 216

22. LCM of 10, 15, 20

5	10, 15, 20
2	2, 3, 4
	1, 3, 2

LCM = 2 × 2 × 3 × 5

= 60 minutes

or = 1 hour

The bells will next ring together at

7 : 00 a.m. + 1 hour

= 8.00 a.m

23. (a) $1\frac{3}{8} + \frac{11}{12} + 1\frac{5}{6} = \frac{11}{8} + \frac{11}{12} + \frac{11}{6}$

$$= \frac{11 \times 3 + 11 \times 2 + 11 \times 4}{24}$$

$$= \frac{33 + 22 + 44}{24}$$

$$= \frac{99}{24} = \frac{33}{8} = 4\frac{1}{8}$$

(b) $1\frac{8}{15} + 2\frac{7}{10} + \frac{3}{5} = \frac{23}{15} + \frac{27}{10} + \frac{3}{5}$

$$= \frac{23 \times 2 + 27 \times 3 + 3 \times 6}{30}$$

$$= \frac{46 + 81 + 18}{30}$$

$$= \frac{145}{30} = \frac{29}{6} = 4\frac{5}{6}$$

(c) $2\frac{1}{4} + 1\frac{3}{5} + 2\frac{1}{2} = \frac{9}{4} + \frac{8}{5} + \frac{5}{2}$

$$= \frac{9 \times 5 + 8 \times 4 + 5 \times 10}{20}$$

$$= \frac{45 + 32 + 50}{20}$$

$$= \frac{127}{20} = 6\frac{7}{20}$$

24. $5\frac{3}{5} - 2\frac{3}{4} = \frac{28}{5} - \frac{11}{4}$

$$= \frac{28 \times 4 - 11 \times 5}{20}$$

$$= \frac{112 - 55}{20} = \frac{57}{20} = 2\frac{17}{20}$$

25. After reading $\frac{2}{3}$ of a book, 60 pages are left.

That means $\frac{1}{3}$ of book = 60 pages

metre or 1 book = 60 × 3 = 180 pages

26. ∵ 1 metre of cloth costs = ₹$32\frac{1}{2}$ = ₹$\frac{65}{2}$

∴ $3\frac{1}{5}\left(\frac{16}{5}\right)$ metre cloth costs = ₹$\left(\frac{65}{2} \times \frac{16}{5}\right)$

= ₹(13 × 8) = ₹104

27. **(a)** $1\frac{1}{4} \times 2\frac{2}{5} = \frac{5}{4} \times \frac{12}{5}$

$= \frac{\cancel{5} \times \cancel{12}^{3}}{\cancel{4} \times \cancel{5}} = 3$

(b) $5\frac{1}{7} \times 5\frac{4}{9} = \frac{36}{7} \times \frac{49}{9}$

$= \frac{\cancel{36}^{4} \times \cancel{49}^{7}}{\cancel{4} \times \cancel{9}} = 4 \times 7 = 28$

(c) $\frac{3}{4} \times \frac{8}{9} \times \frac{27}{32} = \frac{3 \times \cancel{8} \times \cancel{27}^{3}}{\cancel{4} \times \cancel{9} \times \cancel{32}_{4}}$

$= \frac{3 \times 3}{4 \times 4} = \frac{9}{16}$

(d) $2\frac{2}{5} \times 2\frac{2}{3} \times 8\frac{1}{3} = \frac{12}{5} \times \frac{8}{3} \times \frac{25}{3}$

$= \frac{\cancel{12}^{4} \times 8 \times \cancel{25}^{5}}{\cancel{5} \times \cancel{3} \times 3}$

$= \frac{4 \times 8 \times 5}{3} = \frac{160}{3} = 53\frac{1}{3}$

28. $5\frac{1}{9}l$ or $\frac{46}{9}$ litre kerosene costs = ₹92

Then 1 litre kerosene costs $= ₹\frac{92}{\frac{46}{9}}$

$= ₹\left(92^{2} \times \frac{9}{46}\right) = ₹18$

29. Ratio $= \frac{\text{no. of teachers}}{\text{no. of students}} = \frac{57}{1900} = \frac{3}{100} = 3 : 100$

30. to 33. : Do it yourself

34.

$$\begin{array}{r} 2.003 \\ 0.700 \\ +16.790 \\ \hline 19.493 \\ \hline \end{array}$$

35.(a)

$$\begin{array}{r} 16.10 \\ -9.25 \\ \hline 6.85 \\ \hline \end{array}$$

(b)

$$\begin{array}{r} 18.50 \\ -16.75 \\ \hline 1.75 \\ \hline \end{array}$$

(c)

$$\begin{array}{r} 7.00 \\ -4.32 \\ \hline 2.68 \\ \hline \end{array}$$

36.(a) Do it yourself

(b)

$$\begin{array}{r} 1.04 \\ \times 5.4 \\ \hline 416 \\ 5200 \\ \hline 5.616 \\ \hline \end{array}$$

(c)

$$\begin{array}{r} 6.17 \\ \times 4.3 \\ \hline 1851 \\ 24680 \\ \hline 26.531 \\ \hline \end{array}$$

37.(a) $\frac{0.56}{10} = 0.056$

(b)

$$25 \overline{)12.50} \quad \begin{array}{l} 0.5 \\ 125 \\ 0 \end{array}$$

Q = 0.5

(c) $\frac{3}{0.8} = \frac{3 \times 10}{0.8 \times 10} = \frac{30}{8} = 3.75$

38. 16.5 kg of rice in = 1 sack

1 kg of rice in = $\frac{1}{16.5}$ sack

313.5 kg of rice in = $\frac{313.5}{16.5}$ sacks = 19 sacks

8. AVERAGE

EXERCISE 8.1

1. Average length of ribbons = $\frac{38 + 36 + 34 + 40}{4}$

$= \frac{148}{4} = 37$ cm

2. Average of no. of students

$= \frac{39 + 36 + 34 + 33 + 28}{5}$

$= \frac{170}{5} = 34$

3. Average daily temperature

$= \frac{43 + 40 + 39 + 40 + 36 + 43 + 39}{7}$

$= \frac{280}{7} = 40°C$

4. Average height of students

$= \frac{150 + 149 + 152 + 145 + 147}{5}$

$= \frac{743}{5} = 148.6$ cm

5. Average monthly rainfall

$$= \frac{2.8 + 5.5 + 5.8 + 12.5 + 4.4}{5}$$

$$= \frac{31}{5} = 6.2 \text{ cm}$$

6. Average daily attendance

$$= \frac{39 + 39 + 43 + 40 + 42 + 37}{6}$$

$$= \frac{240}{6} = 40$$

7. Average score

$$= \frac{102 + 212 + 360 + 170 + 210 + 392}{6}$$

$$= \frac{1446}{6} = 241 \text{ runs}$$

(a) 1 **(b)** 5 **(c)** none

8. Distance travelled in 3 hrs = speed × time
= 65 × 3
= 195 km.

Distance travelled in 2 hrs = speed × time
= 70 × 2
= 140 km

Distance travelled in 5 hrs = 195 + 140 = 335 km

Average speed = $\frac{335}{5}$ = 67 km/hr

EXERCISE 8.2

1. Weekly consumption of milk for family A

$= 14 + 12.5 + 16 + 14\ l$

$= 56.5\ l$

Weekly consumption of milk for family

B = 13 + 15 + 15 +14

$= 57\ l$

Weekly consumption of milk for family

C = 20 + 12 + 12 + 13

$= 57\ l$

Thus, family A uses the least quantity of milk.

2. Average temperature of town A

$$= \frac{7 + 9 + 8 + 11 + 6 + 9 + 6}{7} = \frac{56}{7} = 8°C$$

Average temperature of town B

$$= \frac{4 + 8 + 7 + 10 + 11 + 13 + 10}{7} = \frac{63}{7} = 9°C$$

$\because$ 8°C < 9°C

Hence town A is colder.

3. Average attendance of class III

$$= \frac{49 + 35 + 37 + 41 + 39 + 45}{6} = \frac{246}{6} = 41$$

Average attendance of class IV

$$= \frac{40 + 40 + 38 + 43 + 40 + 33}{6} = \frac{234}{6} = 39$$

Average attendance of class V

$$= \frac{40 + 42 + 39 + 36 + 38 + 42}{6} = \frac{237}{6} = 39.5$$

(a) Class III had best average of attendance during the week.

(b) Average attendance on Monday $= \frac{49 + 40 + 40}{3}$

$= \frac{129}{3} = 43$

Average attendance on Tuesday $= \frac{35 + 40 + 42}{3}$

$= \frac{117}{3} = 39$

Average attendance on Wednesday $= \frac{37 + 38 + 39}{3}$

$= \frac{114}{3} = 38$

Average attendance on Thursday $= \frac{41 + 43 + 36}{3}$

$= \frac{120}{3} = 40$

Average attendance on Friday $= \frac{39 + 40 + 38}{3}$

$= \frac{117}{3} = 39$

Average attendance on Saturday $= \frac{45 + 33 + 42}{3}$

$= \frac{120}{3} = 40$

Hence on wednesday the average attendance of three classes was the poorest (38).

9. PERCENTAGE

EXERCISE 9.1

1. (a) $\frac{4}{5} \times 100\% = 80\%$ **(b)** $\frac{3}{4} \times 100\% = 75\%$

(c) $\frac{3}{8} \times 100\% = 37.5\%$ **(d)** $\frac{14}{25} \times 100\% = 56\%$

(e) $\frac{7}{8} \times 100\% = 87.5\%$ **(f)** $\frac{13}{20} \times 100\% = 65\%$

(g) $\frac{17}{50} \times 100\% = 34\%$ **(h)** $\frac{3}{10} \times 100\% = 70\%$

(i) $\frac{19}{20} \times 100\% = 95\%$ **(j)** $\frac{16}{25} \times 100\% = 64\%$

(k) $0.1 \times 100\% = 10\%$ **(l)** $0.7 \times 100\% = 70\%$

(m) $0.18 \times 100\% = 18\%$ **(n)** $0.36 \times 100\% = 36\%$

(o) $0.06 \times 100\% = 6\%$ **(p)** $0.123 \times 100\% = 12.3\%$

(q) $0.024 \times 100\% = 2.4\%$ **(r)** $0.105 \times 100\% = 10.5\%$

(s) $0.004 \times 100\% = 0.4\%$ **(t)** $0.645 \times 100\% = 64.5\%$

2. (a) $12\% = \frac{12}{100} = \frac{3}{25}$ **(b)** $30\% = \frac{30}{100} = \frac{3}{10}$

(c) $24\% = \frac{24}{100} = \frac{6}{25}$ **(d)** $40\% = \frac{40}{100} = \frac{2}{5}$

(e) $55\% = \frac{55}{100} = \frac{11}{20}$ **(f)** $20\% = \frac{20}{100} = \frac{1}{5}$

(g) $80\% = \frac{80}{100} = \frac{4}{5}$ **(h)** $12\% = \frac{25}{2} \times \frac{1}{100} = \frac{1}{8}$

(i) $72\% = \frac{72}{100} = \frac{18}{25}$ **(j)** $75\% = \frac{75}{100} = \frac{3}{4}$

3. (a) $12.5\% = \frac{12.5}{100} = 0.125$ **(b)** $43.2\% = \frac{43.2}{100} = 0.432$

(c) $8\% = \frac{8}{100} = 0.08$ **(d)** $0.5\% = \frac{0.5}{100} = 0.005$

(e) $10\% = \frac{10}{100} = 0.1$ **(f)** $75\% = \frac{75}{100} = 0.75$

(g) $7.5\% = \frac{7.5}{100} = 0.075$ **(h)** $0.3\% = \frac{0.3}{100} = 0.003$

(i) $80\% = \frac{80}{100} = 0.8$ **(j)** $95\% = \frac{95}{100} = 0.95$

4. (a) $\frac{17}{85} \times 100\ \% = 20\%$ **(b)** $\frac{7}{70} \times 100\% = 10\%$

(c) $\frac{8}{50} \times 100\ \% = 16\%$ **(d)** $\frac{10}{200} \times 100\ \% = 5\%$

(e) $\frac{16}{80} \times 100\ \% = 20\%$ **(f)** $\frac{25}{400} \times 100\ \% = 6.25\%$

5. (a) $60 \times \frac{25}{100} = \frac{1500}{100} = 15$ **(b)** $60 \times \frac{15}{100} = \frac{900}{100} = 9$

(c) $60 \times \frac{30}{100} = 18$ min **(d)** $100 \times \frac{15}{100} = 15$ cm

(e) $100 \times \frac{50}{100} = 50$ paise **(f)** $1000 \times \frac{12.5}{100} = 125$g

(g) $1000 \times \frac{20}{100} = 200$ ml **(h)** $1000 \times \frac{18}{100} = 180$ m

(i) $450 \times \frac{10}{100} = ₹45$ **(j)** $250 \times \frac{18}{100} = 45$ g

(k) $320 \times \frac{12.5}{100} = 40$ ml **(l)** $700 \times \frac{5}{100} = 35$ m

6. (a) $\frac{24}{60} \times 100 =$ [40] % of 1 hour

(b) $\frac{25}{100} \times 100 =$ [25] % of 1 rupee

(c) $\frac{5}{100} \times 100 =$ [5] % of 1 m

(d) $\frac{50}{1000} \times 100 =$ [5] % of 1 *l*

(e) $\frac{15}{1000} \times 100 =$ [1.5] % of 1 km

(f) $\frac{5}{10} \times 100 =$ [50] % of 1 cm

(g) $\frac{5}{1000} \times 100 =$ [0.5] % of 1 *l*

(h) $\frac{35}{100} \times 100 =$ [35] % of 1 m

(i) $\frac{35}{1000} \times 100 =$ [3.5] % of 1 km

(j) $\frac{125}{1000} \times 100 =$ [12.5] % of 1 kg

7. 20% of the length = 25 m

or $\frac{20}{100}$ of the length = 25 m

$\therefore$ Length $= \frac{25 \times 100^{5}}{20} = 125$ m

8. 12% of the no. = 27

or $\frac{12}{100}$ of the no. = 27

$\therefore$ no. = $\frac{\cancel{27}^{9} \times 100}{\cancel{12}_{4}} = \frac{900}{4}$

= 225

EXERCISE 9.2

1. Annual rainfall = 125 cm

Winter rainfall = 12%

= $125 \times \frac{12}{100}$ = 15 cm

2. Total students = 550

Students on education trip = 80% of 550

= $550 \times \frac{80}{100}$

= 440 students

3. No. of boys = 650 boys

No. of girls = 600 girls

Total students = 1250

Percentage of girls = $\frac{600}{1250} \times 100 = 48\%$

4. Percentage of marks got by Alice = $\frac{1067}{1100} \times 100$

= 97%

5. Total students = 800

In which no. of girls = 392

So. no. of boys = 408

Percentage of boys in school $= \frac{408}{800} \times 100$

$= 51\ \%$

6. Win games = 70% of 20 games

$= \frac{20 \times 70}{100}$

= 14 games

7. Population of village = 12, 380

Increment of population = 15 % per year

So, after one year population will be

$= 12380 + 15\%\text{of } 12380$

$= 12380 + \frac{12380 \times 15}{100}$

$= 12380 + 1857$

$= 14{,}237$

8. Price of camera = ₹ 2500

Discount =15 %

So Sarah pay

$= 2500 - 15\ \%\text{ of } 2500$

$= 2500 - \frac{2500 \times 15}{100}$

$= 2500 - 375$

= ₹ 2125

10. PROFIT AND LOSS

EXERCISE 10.1

1. (a) Profit = S.P – C.P = 118 – 100 = ₹ 18

(b) Profit = S.P – C.P = 100 – 85 = ₹ 15

(c) Loss = C.P – S.P = 120 – 65 = ₹ 55

(d) Loss = C.P – S.P = 72.5 – 65 = ₹ 7.5

2. (a) Profit = S.P – C.P = 275 – 250 = ₹ 25

(b) Loss = C.P – S.P = 600 – 500 = ₹ 100

(c) Loss = C.P – S.P = 265 – 251 = ₹ 14

(d) Profit = S.P – C.P = 309 – 297 = ₹ 12

3. C. P. of 40 Pencils = ₹ 140

S. P. of 40 Pencils = 40 × 4 = ₹160

$\because$ S.P > C.P

$\therefore$ Profit = S.P – C.P

= 160 – 140

= ₹ 20

4. C. P. of 25 litre of milk = 25 × 25 = ₹625

S. P. of 25 litre of milk = 27 × 25 = ₹ 675

$\because$ S.P > C.P

$\therefore$ Profit = S.P – C.P

= 675 – 625

= ₹ 50

5. C. P. = ₹ 545

Overhead charges = ₹ 75

So, now C.P = 545 + 75 = ₹620

S.P = ₹700

∴ Profit = S.P – C.P

= 700 – 620

= ₹ 80

6. C. P. of 25 dozen of bananas = ₹400

S.P. of 25 dozen of bananas = ₹ 20 × 25 = ₹500

∵ S.P > C.P

∴ Profit = S.P – C.P

= 500 – 400

= ₹ 100

7. C. P. of sofa set = ₹ 4500

Overhead charges = ₹ 100

So, new C.P of sofa set = 4500 + 100 = ₹ 4600

S.P of sofa set = ₹ 5000

∵ S.P > C.P

∴ Profit = S.P – C.P

= 5000 – 4600

= ₹ 400

EXERCISE 10.2

1. (a) S.P. = C.P + Profit

= 250 +18

= ₹268

(b) S.P. = C.P – Loss

= 970 – 40

= ₹ 930

(c) S.P. = C.P + Profit

= 5000 + 290

= ₹5290

(d) S.P. = C.P – Loss

= 10,115 – 550

= ₹ 9565

2. (a) C.P. = S.P – Profit

= 450 – 20

= ₹430

(b) C.P. = S.P + Loss

= 720 + 35

= ₹ 755

(c) C.P. = S.P + Loss

= 1030 + 210

= ₹1240

(d) C.P. = S.P – Profit

= 8947 – 369

= ₹ 8578

3. C.P. = 20 × 16

= ₹320

Profit = ₹80

∴ S.P = C.P + Profit

= 320 + 80

= ₹ 400

4. C.P. = ₹ 3250

Profit = ₹ 275

$\therefore$ S.P = C.P + Profit

= 3250 + 275

= ₹ 3525

5. C.P. = ₹ 700

Loss = ₹ 35

$\therefore$ S.P = C.P – Loss

= 700 – 35

= ₹ 665

6. C.P. = ₹ 545

Loss = ₹ 65

$\therefore$ S.P = C.P – Loss

= 545 – 65

= ₹ 480

7. S.P. = ₹ 990

Profit = ₹ 99

$\therefore$ C.P = S.P – Profit

= 990 – 99

= ₹ 891

8. Profit = ₹ 875

S.P = ₹ 9300

$\therefore$ C.P = S.P – Profit

= 9300 – 875

= ₹ 8425

9. Loss = ₹ 500

S.P = ₹ 6100

$\therefore$ C.P = S.P + Loss

= 6100 + 500

= ₹ 6600

10. Loss = ₹ 27

S.P = ₹ 580

∴ C.P = S.P + Loss

= 580 + 27

= ₹ 607

EXERCISE 10.3

1. (a) C.P. = ₹300

S.P. = ₹ 270

∴ Loss = C.P − S.P

= 300 − 270

= ₹30

$$\%\text{Loss} = \frac{\text{Loss}}{\text{C.P}} \times 100$$

$$= \frac{30}{300} \times 100$$

= 10%

(b) C.P. = ₹ 540

S.P. = ₹ 450

∴ Loss = C.P − S.P

= 540 − 450

= ₹ 90

$$\%\text{Loss} = \frac{\text{Loss}}{\text{C.P}} \times 100$$

$$= \frac{90}{540} \times 100$$

= 16.66%

(c) C.P. = ₹ 1200

S.P. = ₹ 1344

∴ Profit = S.P − C.P

= 1344 − 1200

= ₹ 144

$$\%\text{Profit} = \frac{\text{Profit}}{\text{C.P}} \times 100$$

$$= \frac{144}{1200} \times 100$$

= 12%

(d) C.P. = ₹ 500

S.P. = ₹ 600

∴ Profit = S.P − C.P

= 600 − 500

= ₹ 100

$$\%\text{Profit} = \frac{\text{Profit}}{\text{C.P}} \times 100$$

$$= \frac{100}{500} \times 100$$

= 20%

2. C.P. = ₹ 800

S.P. = ₹ 900

∴ Profit = S.P − C.P

= 900 − 800

= ₹ 100

$$\%\text{Profit} = \frac{\text{Profit}}{\text{C.P}} \times 100$$

$$= \frac{100}{800} \times 100$$

$$= \frac{100}{8}$$

$$= 12.5\%$$

3. C.P. = ₹ 1250

S.P. = ₹ 1350

$\therefore$ Profit = S.P − C.P

= 1350 − 1250

= ₹ 100

$$\%\text{Profit} = \frac{\text{Profit}}{\text{C.P}} \times 100$$

$$= \frac{100}{1250} \times 100$$

$$= 8\%$$

4. C.P. = ₹ 5560

Overhead charges =₹ 440

New C.P = 5560 + 440

= ₹ 6000

$\therefore$ Profit = S.P − C.P

= 6120 − 6000

= ₹ 120

$$\%\text{Profit} = \frac{\text{Profit}}{\text{C.P}} \times 100$$

$$= \frac{120}{6000} \times 100$$

$$= 2\%$$

5. Cost of 15 buckets = ₹ 15 × 50 = ₹ 750

Cost of 20 buckets =₹ 20 × 40 = ₹ 800

Overhead charges = ₹ 50

Now, C.P = ₹ 1600

S.P. of 35 buckets = 35 × 45

= ₹ 1575

∵ S.P < C.P

∴ Loss = C.P – S.P

= 1600 – 1575

= ₹ 25

$\%\text{Loss} = \frac{\text{Loss}}{\text{C.P}} \times 100$

$= \frac{25}{1600} \times 100$

$= \frac{25}{16} = 1\frac{9}{16}\%$

6. C.P = ₹ 450

S.P = 30 × 18 = ₹ 540

∵ S.P > C.P

∴ Profit = S.P – C.P

= 540 – 450

= ₹ 90

$\%\text{Profit} = \frac{\text{Profit}}{\text{C.P}} \times 100$

$= \frac{90}{450} \times 100$

= 20%

7. C.P = ₹ 16

S.P = ₹ 17

∴ Profit = S.P – C.P

$= 17 - 16$

$= ₹\ 1$

$\%\text{Profit} = \frac{\text{Profit}}{\text{C.P}} \times 100$

$= \frac{1}{16} \times 100$

$= 6.25\ \%$

8. C.P = ₹ 250

S.P = ₹ 200

$\therefore$ Loss $= \text{C.P} - \text{S.P}$

$= 250 - 200$

$= ₹\ 50$

$\%\text{Loss} = \frac{\text{Loss}}{\text{C.P}} \times 100$

$= \frac{50}{250} \times 100$

$= 20\ \%$

9. C.P = ₹ 6000

Overhead charges = ₹ 250

New C.P= 6000 + 250

= ₹ 6250

S.P. = ₹ 7000

$\therefore$ Profit $= \text{S.P} - \text{C.P}$

$= 7000 - 6250$

$= ₹\ 750$

$\%\text{Profit} = \frac{\text{Profit}}{\text{C.P}} \times 100$

$= \frac{750}{6250} \times 100 = 12\ \%$

10. C.P = ₹ 1500

Loss = ₹ 135

$$\%\text{Loss} = \frac{\text{Loss}}{\text{C.P}} \times 100$$

$$= \frac{135}{1500} \times 100 = 9\ \%$$

II. SHOPPING BILLS

EXERCISE II.I

1. (a) Bill

Lucy Provisions — Telephone :

Colaba, Mumbai — Bill no. :

Date : 26.08.2016

M/S Annie Andheri, Mumbai

S.No.	Name of item	Quantity	Price Per Unit ₹	Amount ₹
1.	Oil	2 kg	95/ kg	190
2.	Sugar	500 g	32/ kg	16
3.	Bathing Soap	2 dozen	120/dozen	240
4.	Detergent Powder	1 packet	65	65
5.	Toothpaste	1	35	35
			Total	546

For Lucy Provisions

(b) Amount get back = ₹1000 – ₹546 = ₹454

2. (a) Bill

Broadway General store Telephone :

Vasant kunj, New Delhi Bill no. :

Date : .....

Name : Angela

S.No.	Name of item	Quantity	Price Per Unit	Amount
1.	Pencil 4B	6	4	24
2.	Erasers	2	3	6
3.	Sharpeners	2	5	10
4.	Notebooks	5	15	75
5.	Crayons	6	8	48
6.	Colour Box	1	32	32
			Total	195

For Broadway General Store

(b) Amount get back = ₹200 – ₹195 = ₹5

3. to 5. : Do it yourself.

12. MEASUREMENT OF LENGTH, MASS AND CAPACITY

EXERCISE 12.1

1. (a) 1m 5cm = 1.05 m **(b)** 4m 10cm = 4.10 m

(c) 1 cm 9 mm = 1.9 cm **(d)** 10m 35 cm = 10.35 m

(e) 1 km 350 m = 1.350 km **(f)** 1 km 5m = 1.005 km

2. (a) 2460 m = 2.460 km **(b)** 567m = 0.567 km

(c) 2.312 km = 2312 m **(d)** 7.050 km = 7050 m

(e) 4.12m = 412 cm **(f)** 3.01 m = 301 cm

(g) 1.20m = 120 cm **(h)** 45 m = 0.045 km

(i) 5cm = 0.05 m **(j)** 4 mm = 0.04 cm

(k) 2.3 cm = 23 mm **(l)** 578 m = 578 m

(m) 15 mm = 1.5 cm **(n)** 7.234 km = 7234 m

(o) 107 cm = 1.07 m

EXERCISE I2.2

1. (a) 4kg 235g = 4.235 kg **(b)** 3kg 50g = 3.050 kg

(c) 5 kg 5g = 5.005 kg **(d)** 1g 234 mg = 1.234 g

(e) 5 g 80 mg = 5.080 g **(f)** 3 g 5 mg = 3.005 g

2. (a) 2376 mg = 2.376 g **(b)** 5042 g = 5.042 kg

(c) 3.650 kg = 3650 g **(d)** 0.005 kg = 5 g

(e) 3005 g = 3.005 kg **(f)** 0.050 kg = 50 g

(g) 50 g = 0.050 kg **(h)** 5 g = 0.005 kg

(i) 3020 mg = 3.020 g **(j)** 105 mg = 0.105 g

(k) 3.060 g = 3.020 kg **(l)** 0.050 g = 50 g

EXERCISE I2.3

1. (a) 5 *kl* 153 *l* = 5.153 *kl* **(b)** 3 *kl* 50 *l* = 3.050 *kl*

(c) 5 *kl* 5 *l* = 5.005 *kl* **(d)** 2 *l* 432 *ml* = 2.432 *l*

(e) 5 *l* 80 *ml* = 5.080 *l* **(f)** 3 *l* 5 *ml* = 3.005 *l*

2. (a) 1267 *l* = 1.267 *kl* **(b)** 2045 *l* = 2.045 *kl*

(c) 2.350 *kl* = 2350 *l* **(d)** 0.005 *kl* = 5 *l*

(e) 3005 *l* = 3.005 *kl* **(f)** 0.050 *kl* = 50 *l*

(g) 50 *l* = $\boxed{0.050}$ *kl* **(h)** 5 *l* = $\boxed{0.005}$ *kl*

(i) 3020 *ml* = $\boxed{3.020}$ *l* **(j)** 105 *ml* = $\boxed{0.105}$ *l*

(k) 3.060 *l* = $\boxed{3.020}$ *ml* **(l)** 0.050 *l* = $\boxed{50}$ *ml*

EXERCISE 12.4

1. Total distance travelled = 72 km

Travelled by bus = 65.5 km

Travelled by autorikshaw = 5.255 km

∴ rest on foot distance = 72 – (65.5 + 5.255)

= 72 – 70.755

= 1.245 km

2. In 1 Minute covered height = 15 m 5 cm

= 15.05 m

In 25 minutes covered height = 15.05 × 25

= 376.25 m

3. In 17 minutes distance covered = 124 m 27 cm

= 124.27 m

In 1 minute distance covered = $\frac{124.27}{17}$

= 7.31 m

4. Net weight of carton = 5 kg

Grapes rotten = 350g = 0.350 kg

Children ate = 1 kg 365 g

= 1.365 kg

Used in evening = 800 g = 0.8 kg

So grapes left = 5 – 0.350 – 1.365 – 0.8

$= 5 - (0.350 + 1.365 + 0.8)$

$= 5 - 2.515$

$= 2.485$ kg

5. 24 pieces weight = 8 kg 520 g

$= 8.520$ kg

So, 1 piece weight $= \frac{8.520}{24}$ kg

$= 0.355$ kg

$= 355$ g

6. 1 Carton contains = 1 kg 75 g of sweets

$\therefore$ 32 carton contains = 1.075×32 kg of sweets

$= 34.400$ kg of sweets

7. 1 km distance took = 70 *ml* petrol

$\therefore$ 72 km distance took = 72×70 *ml* petrol

$= 5040$ *ml* petrol

$= 5.040$ *l* petrol

8. 8 children get = 3 *l* of lemon

$\therefore$ 1 child gets = $\frac{3}{8}$ *l* of lemon

$= \frac{3}{8} \times 1000$ *ml* of lemon

$= 375$ *ml* of lemon

9. Total paint was = 10 *l*

$\therefore$ Used for doors = 4 *l 350 ml*

$= 4.350$ *l*

Used for windows = 2 *l* 450 *ml*

$= 2.450\ l$

So Paint left $= 10 - 4.350 - 2.450$

$= 10 - 6.800$

$= 3.200\ l$

10. 45 persons get $= 290.250\ l$ kerosene

1 person gets $= \frac{290.250}{45}\ l$ kerosene

$= 6.450\ l$ kerosene

13. SPEED, DISTANCE AND TIME

EXERCISE 13.1

1. Distance = 390 km

Time = 6 hr 30 min

= 6.5 hr.

$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{390}{6.5}$

= 60 km / hr

2. $\text{Speed of car} = \frac{\text{Distance}}{\text{Time}}$

$= \frac{250}{4}$

= 62.5 km/hr

3. $\text{Speed of car} = \frac{\text{Distance}}{\text{Time}}$

$= \frac{704}{11}$

= 64 km/hr

4. (a) $45 \text{ km/hr} = \dfrac{45 \times 1000 \text{ m}}{60 \times 60 \text{ sec}}$

$= 45 \times \dfrac{5}{18}$

$= \dfrac{25}{2} = 12.5 \text{ m/sec}$

(b) $72 \text{ km/hr} = 72 \times \dfrac{5}{18}$

$= 20 \text{ m/sec}$

(c) $63 \text{ km/hr} = \cancel{63}^{7} \times \dfrac{5}{\cancel{18}_{2}} = \dfrac{35}{2} = 17.5 \text{ m/sec}$

5. (a) $\dfrac{36 \text{ km}}{1 \text{ hour}} = \dfrac{36 \times 1000 \text{ m}}{60 \text{ minute}}$

$= 36 \times \dfrac{50}{3} \text{ m/minute}$

$= 12 \times 50 = 600 \text{ m/minute}$

(b) $\dfrac{60 \text{ km}}{1 \text{ hour}} = 60 \times \dfrac{50}{3} \text{ m/minute}$

$= 20 \times 50 = 1000 \text{ m/minute}$

(c) $\dfrac{84 \text{ km}}{1 \text{ hour}} = 84 \times \dfrac{50}{3} \text{ m/minute}$

$= 28 \times 50 = 1400 \text{ m/minute}$

6. (a) $\dfrac{300 \text{ m}}{\text{min}} = \dfrac{0.300 \text{ km}}{\dfrac{1}{60} \text{ hour}}$

$= 0.3 \times 60 = 18.0 \text{ km/hr}$

(b) $\dfrac{25 \text{ m}}{\text{sec}} = \dfrac{0.025 \text{ km}}{\dfrac{1}{60 \times 60} \text{ hour}}$

$= 0.025 \times 60 \times 60 = 90$ km/hr

(c) $\dfrac{40 \text{ m}}{\text{sec}} = \dfrac{0.040 \text{ km}}{\frac{1}{3600} \text{ hour}}$

$= 0.040 \times 3600 = 144$ km/hr

7. Distance = 700 metre

Time = 20 min

Speed $= \dfrac{\text{Distance}}{\text{Time}} = \dfrac{700}{20}$

$= 35$ m/minute

8. Speed = 12 km/hr

Distance = 400 m = 0.4 km

Time $= \dfrac{\text{Distance}}{\text{Speed}} = \dfrac{0.4}{12}$ hr

$= \dfrac{0.4}{12} \times 60$ min

$= 0.4 \times 5$ min

$= 2$ min

9. Speed $= 2\dfrac{1}{2}$ km/hr

Time = 30 minutes

$= \dfrac{30}{60}$ hr $= \dfrac{1}{2}$ hr

Distance = Speed × time

$= 2\dfrac{1}{2} \times \dfrac{1}{2}$

$= \dfrac{5}{2} \times \dfrac{1}{2} = \dfrac{5}{4} = 1\dfrac{1}{4}$ km

10. Speed of Celia $= \frac{300 \text{ m}}{40 \text{ sec}}$

$$= \frac{300 \times \frac{1}{1000} \text{ km}}{40 \times \frac{1}{3600} \text{ hr}}$$

$$= \frac{\frac{3}{10} \text{ km}}{\frac{1}{90} \text{ hr}}$$

$$= \frac{3}{10} \times 90 \text{ km/hr}$$

$$= 27 \text{ km/hr}$$

11. Speed = 70 km/hr

Time = 2 hr 30 min =2.5 hr

Distance = ?

Distance = Speed × time

= 70 × 2.5

=175 km

12. Speed = 5 m/sec

Distance = 5 km = 5000 m

Time = ?

Time $= \frac{\text{Distance}}{\text{Speed}} = \frac{5000}{5}$ sec

= 1000 sec

= 16 min 40 sec

13. Speed = 2 m/sec

Distance = 1 km = 1000 m

Time = ?

Time $= \frac{\text{Distance}}{\text{Speed}} = \frac{1000}{2}$ sec

$= 500$ sec

$= 8$ min 20 sec

14. Distance = 1100 km

Time = 1 hr 50 min

Speed = ?

Time = 1 hr 50 min

$= 1 \text{ hr} + \frac{50}{60}$ hr

$= 1 \text{ hr} + \frac{5}{6}$ hr

$= \frac{11}{6}$ hr

So, Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{1100}{\frac{11}{6}}$ km/hr

$= 1100 \times \frac{6}{11}$ km/hr

$= 600$ km/hr

15. Distance = 6.3 km = 6300 m

Time = 7 min

Speed = ?

Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{6300}{7}$ m/min

$= 900$ m/min

$$\text{or} \qquad = \frac{900 \times \frac{1}{1000} \text{ km}}{\frac{1}{60} \text{ hr}}$$

$$= \frac{9}{10} \times 60 \text{ km/hr}$$

$$= 54 \text{ km/hr}$$

14.LINES AND ANGLES

EXERCISE 14.1

1. Fill in the blanks

(a) A ray has one end-point.

(b) A line-segment has two end-points.

(c) A line has no end point

(d) Two lines can intersect only in one point.

(e) One and only one line can pass through two given points.

(f) Parallel lines meet at no point.

2. (a) In how many points can two lines meet or intersect?

Ans: only one

(b) How many lines can pass through one given point?

Ans: infinite

(c) How many lines can pass through two given points?

Ans: only one

(d) How many lines can intersect in one point?

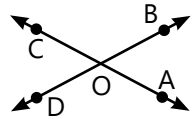
Ans: infinite

3. to 8. : Do it yourself

EXERCISE 14.2

1. ∠AOB, ∠BOC, ∠COD,

∠DOA, ∠AOC, ∠BOD



2. ∠AOB, ∠BOA, ∠BOC, ∠COB, ∠COD, ∠DOC, ∠DOA, ∠AOD, ∠AOC, ∠COA, ∠BOD, ∠DOB

3. acute angle, right angle, obtuse angle, straight angle, reflex angle, complete anlge

4. (a) 69° → acute angle **(b)** 181° → reflex angle

(c) 90° → right angle **(d)** 89° → acute angle

(e) 179° → obtuse angle **(f)** 91° → obtuse angle

(g) 300° → reflex angle **(h)** 270° → reflex angle

(i) 180° → straight angle **(j)** 360°→ complete angle

5. (a) $\frac{180°}{90°} = 2$ **(b)** $\frac{360°}{90°} = 4$

(c) $\frac{270°}{90°} = 3$ **(d)** $\frac{90°}{90°} = 1$

6. (a) 90° + 90° + 90° = 270°

(b) 90° + 90° = 180°

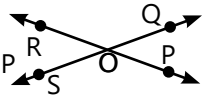
(c) 90° + 90° + 90° + 90° = 360°

(d) 90°

7. (a) ∠POQ and ∠QOR; ∠ROS and ∠SOP

(b) ∠POQ and ∠ROS; ∠QOR and ∠SOP

(c) ∠POQ = ∠ROS; ∠QOR = ∠SOP



8. (a) $90° - 30° = 60°$

(b) $90° - 50° = 40°$

(c) $90° - 25° = 65°$

(d) $90° - 45° = 45°$

(e) $90° - 82° = 8°$

9. (a) $180° - 60° = 120°$

(b) $180° - 85° = 95°$

(c) $180° - 100° = 80°$

(d) $180° - 135° = 50°$

(e) $180° - 175° = 5°$

10. Do it yourself.

11. Do it yourself.

15. CIRCLES

EXERCISE 15.1

1. to 3. Do it yourself

4. (a) $r = 2.5 \text{ cm} \Rightarrow d = 2r = 2 \times 2.5 = 5 \text{ cm}$

(b) $r = 4\frac{1}{2} \text{ cm} \Rightarrow d = 2r = 2 \times \frac{9}{2} = 9 \text{ cm}$

(c) $r = 5 \text{ cm} \Rightarrow d = 2r = 2 \times 5 = 10 \text{ cm}$

(d) $r = 7.2 \text{ cm} \Rightarrow d = 2r = 2 \times 7.2 = 14.4 \text{ cm}$

(e) $r = 9.9 \text{ cm} \Rightarrow d = 2r = 2 \times 9.9 = 19.8 \text{ cm}$

5. (a) $d = 10 \text{ cm} \Rightarrow r = \frac{d}{2} = \frac{10}{2} = 5 \text{ cm}$

(b) $d = 6.6 \text{ cm} \Rightarrow r = \frac{d}{2} = \frac{6.6}{2} = 3.3 \text{ cm}$

(c) $d = 7.2 \text{ cm} \Rightarrow r = \frac{d}{2} = \frac{7.2}{2} = 3.6 \text{ cm}$

(d) $d = 5 \text{ cm} \Rightarrow r = \frac{d}{2} = \frac{5}{2} = 2.5 \text{ cm}$

(e) $d = 9.4 \text{ cm} \Rightarrow r = \frac{d}{2} = \frac{9.4}{2} = 4.7 \text{ cm}$

6. (a) $d = 14 \text{ cm}$

$$\text{Circumference} = \frac{22}{7} \times \text{diameter}$$
$$= \frac{22}{7} \times 14$$
$$= 44 \text{ cm}$$

(b) $d = 5.6 \text{ cm}$

$$\text{Circumference} = \frac{22}{7} \times \text{diameter}$$
$$= \frac{22}{7} \times 5.6$$
$$= 176 \text{ cm}$$

(c) $d = 21 \text{ cm}$

$$\text{Circumference} = \frac{22}{7} \times \text{diameter}$$
$$= \frac{22}{7} \times 21$$
$$= 66 \text{ cm}$$

(d) $d = 7.7 \text{ cm}$

$$\text{Circumference} = \frac{22}{7} \times \text{diameter}$$
$$= \frac{22}{7} \times 7.7$$
$$= 24.2 \text{ cm}$$

(e) d = 42 cm

$$\text{Circumference} = \frac{22}{7} \times \text{diameter}$$

$$= \frac{22}{7} \times 42$$

$$= 132 \text{ cm}$$

7. (a) $$\text{Diameter} = \text{Circumference} \div \frac{22}{7}$$

$$= 44 \div \frac{22}{7}$$

$$= 44 \times \frac{7}{22}$$

$$= 2 \times 7 = 14 \text{ cm}$$

(b) $$\text{Diameter} = \text{Circumference} \div \frac{22}{7}$$

$$= 77 \div \frac{22}{7}$$

$$= 77 \times \frac{7}{22}$$

$$= 24.5 \text{ cm}$$

(c) $$\text{Diameter} = \text{Circumference} \div \frac{22}{7}$$

$$= 5.5 \div \frac{22}{7}$$

$$= 5.5 \times \frac{7}{22}$$

$$= 175 \text{ cm}$$

(d) $$\text{Diameter} = \text{Circumference} \div \frac{22}{7}$$

$$= 16\frac{1}{2} \div \frac{22}{7}$$

$$= \frac{33}{2} \times \frac{7}{22}$$

$$= 5.25 \text{ cm}$$

(e) Diameter = Circumference $\div \frac{22}{7}$

$= 49.5 \div \frac{22}{7}$

$= 49.5 \times \frac{7}{22}$

$= 15.75$ cm

8. to 9. Do it yourself.

16. TRIANGLE

EXERCISE 16.1

1. 3 sides : PQ, QR, RP; 3 angles : $\angle$PQR, $\angle$QRP, $\angle$RPQ

2. (a) $47° + 73° + 60° = 180°$

$\Rightarrow$ Triangle Possible

(b) $60° + 40° + 73° = 173°$

$\Rightarrow$ Triangle not possible

(c) $63° + 67° + 51° = 181°$

$\Rightarrow$ Triangle not possible

(d) $90° + 60° + 30° = 180°$

$\Rightarrow$ Triangle Possible

(e) $90° + 90° + 90° = 270°$

$\Rightarrow$ Triangle not possible

(f) $75° + 70° + 33° = 178°$

$\Rightarrow$ Triangle not possible

3. (a) Third angle $= 180° - (60° + 70°)$

$= 180° - 130°$

$= 50°$

(b) Third angle = 180° – (50° + 85°)

= 180° – 135°

= 45°

(c) Third angle = 180° – (90° + 50°)

= 180° – 140°

= 40°

4. In right angled triangle

One angle is = 90°

Given angle = 38°

So other angle = 180° – (90° + 38°)

= 180° – 128°

= 52°

5. Two angles of a triangle = 68° and 68°

So third angle is = 180° – (68° + 68°)

= 180° – 136°

= 44°

6. In a right angled triangle one angle is 90°.

Other both acute angles are equal.

Let they both are *x*°.

Then, angle of right angled triangle are,

90°, x° and x°

So, 90° + x° + x° = 180°

90° + 2x° = 180°

$2x° = 180° - 90° = 90°$

$$x = \frac{90°}{2} = 45°$$

Hence, they are 45° and 45°.

7. Let each angle of a triangle $= x°$

Then angle of triangle be $x°$, $x°$ and $x°$.

So, $x° + x° + x° = 180°$

$3x° = 180°$

$$x° = \frac{180°}{3°} = 60°.$$

8. (a) AB = 5cm, BC = 7cm, CA = 8 cm

AB + BC = 5 + 7 = 12

$\because$ AB + BC > CA

$\therefore$ Triangle is possible.

(b) AB = 10 cm, BC = 7cm, CA = 8 cm

BC + CA = 7 + 8 = 15

$\because$ BC + CA > AB

$\therefore$ Triangle is possible.

(c) AB = 3 cm, BC = 4 cm, CA = 1 cm

AB + CA = 3 + 1 = 4

$\because$ BC + CA $\not>$ AB

$\therefore$ Triangle is not possible.

(d) AB = 9 cm, BC = 4 cm, CA = 3 cm

BC + CA = 4 + 3 = 7

$\because$ BC + CA $\not>$ AB

$\therefore$ Triangle is not possible.

9. (a) All sides are equal = equilateral triangle

(b) Two sides are equal = isosceles triangle

(c) All sides are unequal = scalene triangle

10. (a) 3.5cm, 3.5cm, 5 cm = isosceles triangle

(b) 4.5 cm, 4.5 cm, 4.5cm = equilateral triangle

(c) 8cm, 4cm, 7cm = scalene triangle

(d) 5cm, 5cm, 5cm = equilateral triangle

(e) 4cm, 3cm, 3cm = isosceles triangle

(f) 5cm, 5.5cm, 6cm = scalene triangle

11. (a) 60°, 30°, 90° = right-angled

(b) 70°, 70°, 40° = acute-angled

(c) 30°, 40°, 110° = obtuse-angled

(d) 90°, 45°, 45° = right-angled

(e) 120°, 30°, 30° = obtuse-angled

(f) 67°,63°, 50° = acute-angled

12. Fill in the blanks

(a) If in the ΔABC, $\angle A=75°$ and $\angle B = 25°$, then triangle is <u>acute-angled</u>.

(b) If in the ΔPQR, $\angle P=60°$ and $\angle Q = 30°$, then triangle is <u>right-angled</u>.

(a) If in the ΔDEF, $\angle D=20°$ and $\angle F = 50°$, then triangle is <u>obtuse-angled</u>.

13. Fill in the blanks

(a) In an acute-angled triangle <u>all</u> the angles must be acute.

(b) An obtuse-angled triangle has an obtuse angle.

(c) In an obtuse-angled triangle, the other two angles are acute.

EXERCISE 16.2

Do it yourself

17. AREA

EXERCISE 17.1

1. (a) l = 10 cm, b = 5cm

$A = l \times b$

$= 10 \times 5 = 50 \text{ cm}^2$

(b) l = 6.5 cm, b = 4 cm

$A = l \times b$

$= 6.5 \times 4 = 26.0 \text{ cm}^2$

(c) l = 8.5 cm, b = 7 cm

$A = l \times b$

$= 8.5 \times 7 = 59.5 \text{ cm}^2$

(d) l = 7.3 cm, b = 6 cm

$A = l \times b$

$= 7.3 \times 6 = 43.8 \text{ cm}^2$

(e) l = 14.4 cm, b = 10 cm

$A = l \times b$

$= 14.4 \times 10 = 144 \text{ cm}^2$

(f) l = 17.2 cm, b = 9 cm

$A = l \times b$

$= 17.2 \times 9 = 154.8 \text{ cm}^2$

2. (a) Breadth of rectangle = 7 cm

Area of rectangle = 105 sq.cm

So, length of rectangle $= \frac{105}{7}$ cm

$= 15$ cm

(b) Length of rectangle = 16 cm

Area of rectangle = 96 sq.cm

So, length of rectangle $= \frac{96}{16}$ cm

$= 6$ cm

3. (a) side = 11 cm

Area = side × side

$= 11 \times 11$

$= 121$ sq.cm

(b) side = 3.1 cm

Area = side × side

$= 3.1 \times 3.1$

$= 9.61$ sq.cm

(c) side = 2.4 cm

Area = side × side

$= 2.4 \times 2.4$

$= 5.76$ sq.cm

(d) side = 3.5 cm

Area = side × side

= 3.5 × 3.5

= 12.25 sq.cm

(e) side = 2.6 cm

Area = side × side

= 2.6 × 2.6

= 6.76 sq.cm

(f) side = 6.5 cm

Area = side × side

= 6.5 × 6.5

= 42.25 sq.cm

4. (a) Area = 49 sq.cm

side = $\sqrt{49}$

= 7 cm

(b) Area = 100 sq.cm

side = $\sqrt{100}$

= 10 cm

(c) Area = 64 sq.cm

side = $\sqrt{64}$

= 8 cm

5. Do it yourself.

6. Side of square field = 45 m

area of square field = side × side

= 45 × 45 = 2025 sq.m

$\because$ 1 sq.m costs = ₹ 6

2025 sq.m costs = ₹(2025 × 6)

= ₹12150

7. Length = 2 m

Breadth = 1.2 m

Area = length × breadth

= 2 × 1.2

= 2.4 m^2

For two sides = 2.4 × 2

= 4.8 m^2

For four planks = 4 × 4.8

= 19.2 m^2

8. Ist playground,

l = 120 m

b = 50 m

$\therefore$ area = $l \times b$

= 120 × 50

= 6000 m^2

IInd playground,

l = 130 m

b = 40 m

$\therefore$ area = $l \times b$

= 130 × 40 = 5200 m^2

So, Ist playground is bigger.

9. Side of a square tile = 10 cm,

Area of a square tile = $10 \times 10 = 100\ cm^2$

Length of floor = 5 m

Breadth of floor = 4.5 m

$\therefore$ area of floor = $l \times b$

$= 5 \times 4.5$

$= 22.5\ m^2$

$= 22.5 \times 100 \times 100\ cm^2$

$= 225000\ cm^2$

So, no. of tiles $= \frac{225000}{100}$

$= 2250$

10. Length of courtyard = 20 m

Breadth of courtyard = 18 m

Area of courtyard $= 20 \times 18$

$= 360\ m^2$

$= 360 \times 100 \times 100$

$= 3600000\ cm^2$

Length of bricks = 22.5 cm

Breath of bricks = 10 cm

Area of bricks $= 22.5 \times 10$

$= 225\ cm^2$

So, no. of bricks $= \frac{3600000}{225} = 16000$

11. Length of room = 7 m

Breadth of room = 5 m

Area of room = 7 × 5

= 35 m^2

Each child required = 70 cm × 50 cm

= 0.7 m × 0.5 m

= 0.35 sq.m

So, no. of children = $\frac{35}{0.35}$

= 100

18. DATA HANDLING

EXERCISE 18.1

1.

Animals	Tally Marks	Numbers
Dogs	𝍸 𝍸 𝍸 𝍸	20
Cats	𝍸 |	6
Rabbits	𝍸	5
Goats	|||	3
Parrots	𝍸 |	6

(a) Most favourite pet animals = Dogs (no. of 20)

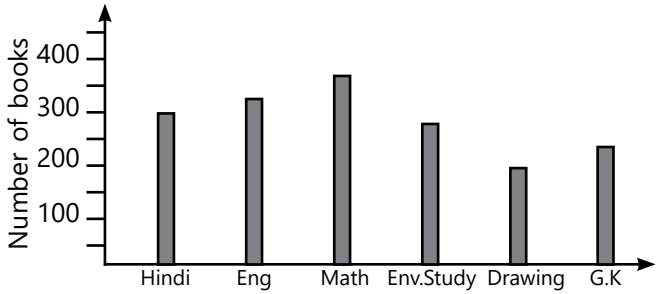
(b) Least favourite pet animals = Goat (no. of 3)

(c) Dogs : 20, cats : 6, rabbits : 5, goats : 3; parrots : 6

(d) Cats and Parrots (no. of 6)

2. to 4. Do it yourself.

5.



(a) Drawing = no. of 200

(b) maths = no. of 400

(c) G.K. =250 books

(d) Hindi and Env.study(300)

(e) Difference of Hindi and English books

= 350 – 300 = 50 books

REVISION TEST PAPER – II

1. The average daily sale of the store during the given 6 days

$$= \frac{\text{The total sale of the cooperative store for the 6 days}}{\text{Number of days}}$$

$$= \frac{7380}{6} = ₹1230$$

2. Total salary of 20 employees = ₹3250× 50 = ₹ 65000

Total salary of 10 employees = ₹4000 × 20 = ₹ 40000

Therefore, total salary of 30 employees

= ₹65000 + ₹40000 = ₹105000

The average salary of an employee in the office

$= \frac{₹\ 105000}{30} = ₹\ 3500$

3. (a) $\frac{4}{5} \times 100\% = 80\%$ **(b)** $\frac{13}{20} \times 100\% = 65\%$

(c) $\frac{7}{10} \times 100\% = 70\%$ **(d)** $\frac{16}{25} \times 100\% = 64\%$

(e) $0.645 \times 100\% = 64.5\%$

4. (a) $8\% = \frac{8}{100} = 0.08$ **(b)** $75\% = \frac{75}{100} = 0.75$

(c) $95\% = \frac{95}{100} = 0.95$ **(d)** $7.5\% = \frac{7.5}{100} = 0.075$

(e) $43.2\% = \frac{43.2}{100} = 0.432$

5. (a) $\frac{16}{80} \times 100\% = 20\%$ **(b)** $\frac{10}{200} \times 100\% = 5\%$

6. (a) $1000 \times \frac{20}{100} = 200\ ml$ **(b)** $250 \times \frac{18}{100} = 45\ g$

7. 20% of the length = 25 m

or $\frac{20}{100}$ of the length = 25 m

$\therefore$ Length $= \frac{25 \times 100^{5}}{20} = 125$ m

8. Andy got 96% of 650 marks $= \frac{96}{100}^{48} \times {}^{13}650$ marks

$= 624$ marks

9. C. P. of 25 litre of milk = 25 × 25 = ₹625

S. P. of 25 litre of milk = 27 × 25 = ₹ 675

$\because$ S.P > C.P

$\therefore$ Profit = S.P – C.P

= 675 – 625

= ₹ 50

10. Loss = ₹ 27

S.P = ₹ 580

$\therefore$ C.P = S.P + Loss

= 580 + 27

= ₹ 607

11. Cost of 15 buckets = ₹ 15 × 50 = ₹ 750

Cost of 20 buckets =₹ 20 × 40 = ₹ 800

Overhead charges = ₹ 50

Now, C.P = ₹ 1600

S.P. of 35 buckets = 35 × 45

= ₹ 1575

$\because$ S.P < C.P

$\therefore$ Loss = C.P – S.P

= 1600 – 1575

= ₹ 25

$$\%\text{Loss} = \frac{\text{Loss}}{\text{C.P}} \times 100$$

$$= \frac{25}{1600} \times 100$$

$$= \frac{25}{16} = 1\frac{9}{16}\%$$

12.(a) 15 mm = 1.5 cm **(b)** 5 cm = 0.05 m

(c) 107 cm = 1.07 m **(d)** 578 m = 0.578 km

(e) 5 g = 0.005 kg **(f)** 0.0088 kg = 88 g

(g) 0.050 *l* = 50 *ml* **(h)** 5*l* = 0.005 *kl*

(i) 105 m*l* = 0.105 *l*

13. 1 km distance took = 70 *ml* petrol

$\therefore$ 72 km distance took = 72 × 70 *ml* petrol

= 5040 *ml* petrol

= 5.040 *l* petrol

14. 24 pieces weight = 8 kg 520 g

= 8.520 kg

So, 1 piece weight = $\frac{8.520}{24}$ kg

= 0.355 kg

= 355 g

15. In 1 Minute covered height = 15 m 5 cm

= 15.05 m

In 25 minutes covered height = 15.05 × 25

= 376.25 m

16. Distance = 504 km

Time taken to cover the distance

= 4 hours 30 min

= $4\frac{1}{2}$ hours = $\frac{9}{2}$ hours

Speed $= \frac{\text{Distance}}{\text{Time}} = 504 \div \frac{9}{2}$

$= 504 \times \frac{2}{9} = 112$ km/hour

Speed of Rajdhani Express between New Delhi and Kanpur is 112 km/hour.

17. Speed $= 2\frac{1}{2}$ km/hr

Time $= 30$ minutes

$= \frac{30}{60}$ hr $= \frac{1}{2}$ hr

Distance = Speed × time

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

$= \frac{5}{2} \times \frac{1}{2} = \frac{5}{4} = 1\frac{1}{4}$ km

18. & 19. Do it yourself.

20.(a) $180° - 60° = 120°$

(b) $180° - 85° = 95°$

(c) $180° - 100° = 80°$

(d) $180° - 135° = 50°$

(e) $180° - 175° = 5°$

21.(a) $r = 2.5$ cm $\Rightarrow d = 2r = 2 \times 2.5 = 5$ cm

(b) $r = 4\frac{1}{2}$ cm $\Rightarrow d = 2r = 2 \times \frac{9}{2} = 9$ cm

(c) $r = 5$ cm $\Rightarrow d = 2r = 2 \times 5 = 10$ cm

22.(a) $d = 14$ cm.

Circumference $= \frac{22}{7} \times$ diameter

$$= \frac{22}{7} \times 14$$
$$= 44 \text{ cm}$$

(b) d = 21 cm

Circumference $= \frac{22}{7} \times$ diameter

$$= \frac{22}{7} \times 21$$
$$= 66 \text{ cm}$$

(c) d = 5.6 cm

Circumference $= \frac{22}{7} \times$ diameter

$$= \frac{22}{7} \times 5.6$$
$$= 176 \text{ cm}$$

23. (a) 5cm, 5cm, 5cm = equilateral triangle

(b) 3.5cm, 3.5cm, 5 cm = isosceles triangle

(c) 5cm, 5.5cm, 6cm = scalene triangle

24. Let each angle of a triangle $= x°$

Then angle of triangle be $x°$, $x°$ and $x°$

So, $x° + x° + x° = 180°$

$3x° = 180°$

$x° = \frac{180°}{3°} = 60°$

25. In a right angled triangle one angle is 90°.

Other both acute angles are equal.

Let they both are $x°$.

Then, angle of right angled

triangle are, 90°, x° and x°.

So, $90° + x° + x° = 180°$

$90° + 2x° = 180°$

$2x° = 180° - 90° = 90°$

$$x = \frac{90°}{2} = 45°$$

Hence, they are 45° and 45°.

26.(a) AB = 5cm, BC = 7cm, CA = 8 cm

AB + BC = 5 + 7 = 12

$\because$ AB + BC > CA

$\therefore$ Triangle is possible

(b) AB = 9 cm, BC = 4 cm, CA = 3 cm

BC + CA = 4 + 3 = 7

$\because$ BC + CA $\not>$ AB

$\therefore$ Triangle is not possible.

27. Do it yourself.

28. Length of room = 7 m

Breadth of room = 5 m

Area of room = 7 × 5

= 35 m^2

Each child required = 70 cm × 50 cm

= 0.7 m × 0.5 m

= 0.35 sq.m

$$\text{So, no. of children} = \frac{35}{0.35}$$

= 100

29. Length of courtyard = 20 m

Breadth of courtyard = 18 m

Area of courtyard = 20 × 18

= 360 m^2

= 360 × 100 × 100

= 3600000 cm^2

Length of bricks = 22.5 cm

Breadth of bricks = 10 cm

Area of bricks = 22.5 × 10

= 225 cm^2

So, no. of bricks = $\frac{3600000}{225}$ = 16000

●●●

Notes