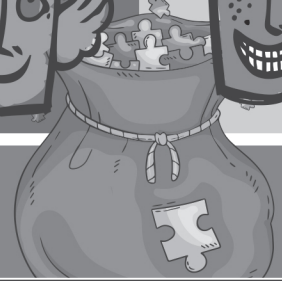




# Mastering Aptitude and **REASONING**

Teacher's Help Book  
(4)



# Mastering Aptitude and REASONING

4

## 1 ANALOGY

1. A thermometer measures temperature, and a scale measures weight.
2. A paw is part of a cat, and a hoof is part of a horse.
3. An umbrella is used for rain, and sunglasses are used to protect from the sun.
4. A sword is a weapon used by a knight, and a gun is used by a soldier, police officer and hunter.
5. March is a part of a year, and Thursday is a part of a week.
6. A ball is used in soccer, and a puck is used in hockey.
7. A penny is worth 5 cents, and a dime is worth 10 cents.
8. A fang is part of a snake, and a tusk is part of an elephant.
9. A symphony is created by an orchestra, and a novel is written by an author.
10. A quilt is associated with a bed, and a curtain is associated with a window.
11. An oar is used to row a rowboat, and a paddle is used to propel a canoe.
12. A pen uses ink, and a pencil uses lead.
13. A hammer is used with nails, and a bat is used with a ball.
14. Meerut is a city in Uttar Pradesh, and Jaipur is a city in Rajasthan.
15. A lion is a carnivore, and a horse is a herbivore.
16. As  $6 \times 2 = 12$ . In the same way,  $19 \times 2 = 38$ .
17. As  $7 \times 7 = 49$ . In the same way,  $8 \times 8 = 64$ .
18. As  $18 \div 3 = 6$ . In the same way,  $24 \div 3 = 8$ .
19. As  $18 \times 3 = 54$ . In the same way,  $24 \times 3 = 72$ .
20. As  $3 \times 3 : 4 \times 4$ . In the same way,  $5 \times 5 : 6 \times 6$ . The answer is 36.
21. The first shape is divided into 8 parts in the second image. Also, the diamond shape will be divided into 8 parts similarly.
22. The square changes to a rectangle. Similarly, a circle changes to an oval.
23. Here, the number of sides increases by 1. The triangle changes to a square and a pentagon changes to a hexagon.

24. A filled shape becomes hollow; a square will transform into a hollow square.
25. There is a reduction in one part of the shape.
26. The shapes are the mirror images of each other.
27. In the first pair, the outer triangle gets reduced. Similarly, the same rule is followed in the second pair.
28. The V-shape moves clockwise and the star disappears.
29. The shape becomes downward and shaded at some part.
30. One stroke of V is added and the image is made downward.

## 2

## GUESSING NUMBERS

---

1. The number must be divisible by 3 and between 40 and 48. Only 45 fits in the condition.
2. A number divisible by both 5 and 10 must end in 0, and it is even. 90 is the correct answer.
3. Among the options, a number between 1 and 10, and also even is 6.
4. Among the options, 10, 25 and 45 are multiples of 5. Only 33 is not a multiple of 5.
5. Among the options, 14, 22 and 26 are not multiples of 4. Only 36 is a multiple of 4.
6. Among the options, a two-digit number divisible by 7 and 0 at the ones place is 70.
7. Among the option, 98 is the correct answer.
8. The least common multiple of 9 and 11 is 99.
9. The least common multiple of 4, 6 and 8 is 24, which is less than 30.
10. A two-digit number meeting these criteria is 65.
11. The only number between 55 and 61 that is a multiple of 5 is 60.
12. Let the numbers be  $x$  and  $y$ .

$$\begin{aligned}
 x + y &= 20 & \Rightarrow & \quad x = 20 - y \\
 x - y &= 4 \\
 (20 - y) - y &= 4 \\
 20 - 2y &= 4 \\
 2y &= 20 - 4 \\
 2y &= 16
 \end{aligned}$$

$$y = \frac{16}{2}$$

$$y = 8$$

Substituting  $y = 8$  in  $x + y = 20$

$$x + 8 = 20$$

$$x = 20 - 8$$

$$x = 12$$

Hence, the numbers are 12 and 8.

13. Let the numbers be  $x$  and  $y$ .

$$x - y = 10$$

$$x + y = 40$$

So, the numbers are 25 and 15.

14. Let the number be  $x$  and  $y$ .

$$x + y = 30$$

$$x - y = 6$$

So, the numbers are 18 and 12.

15. Let the number be  $x$  and  $y$ .

$$x + y = 50$$

$$x - y = 10$$

So, the numbers are 30 and 20.

16. Among the options, 22 is the correct answer.

17. The number that is exactly between 50 and 60 is 55.

18. Subtracting 10 from 80 gives 70.

19. Let the number be  $x$ .

$$2x + 6 = 22$$

$$2x = 22 - 6$$

$$2x = 16$$

$$x = \frac{16}{2}$$

$$x = 8$$

The original number is 8.

20. Among the options, 97 is the correct answer.

21. Let the number be  $x$ .

$$2x - 2 = 12$$

$$2x = 12 + 2$$

$$2x = 14$$

$$x = \frac{14}{2}$$

$$x = 7$$

So, the number is 7.

22. The highest single digit number is 9.

So,  $9 - 3 = 6$

23. Exactly half of 100 is 50.

24. Let the number be  $x$ .

$$x - 15 = 85$$

$$x = 85 + 15$$

$$x = 100$$

25. Let the original number be  $x$ .

$$(x + 5) \times 2 = 24$$

$$2x + 10 = 24$$

$$2x = 24 - 10$$

$$2x = 14$$

$$x = \frac{14}{2}$$

$$x = 7$$

The answer is 7.

26. A number divisible by 3 and not by 6 is 33.

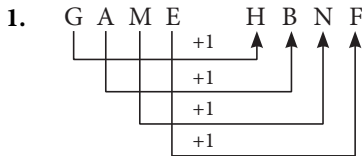
27. The answer is 77.

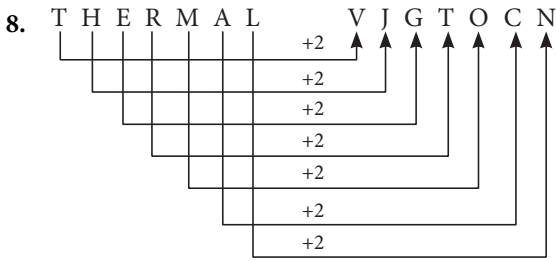
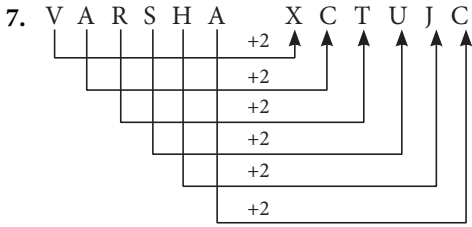
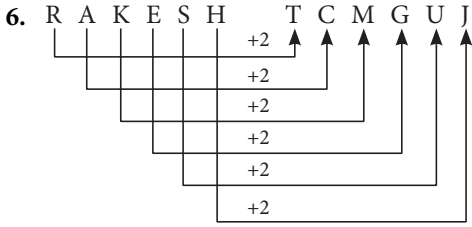
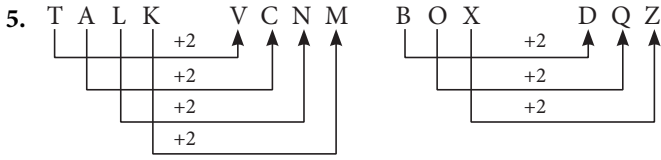
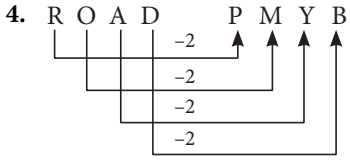
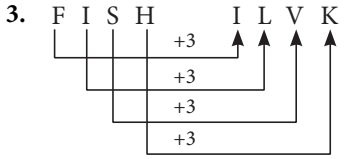
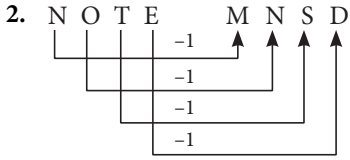
28. A number divisible by 8 and having 4 in tens place gives 48.

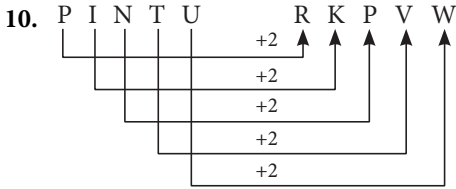
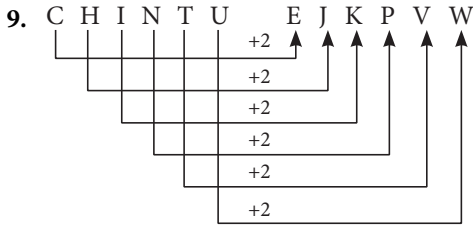
29. Between 40 and 50, the multiple of 9 is 45.

30. Divisible by 3 and has 7 in the tens place; the number 72 fits in the condition.

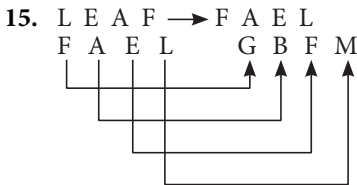
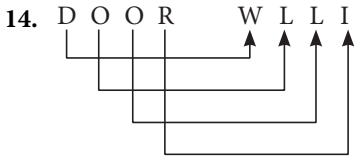
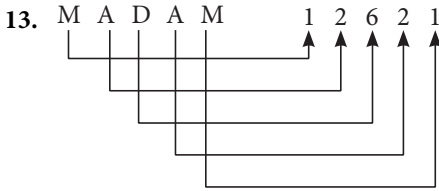
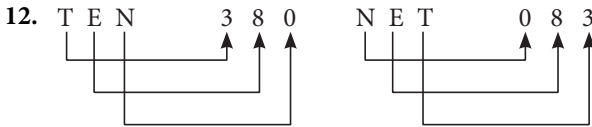
### 3 CODING-DECODING



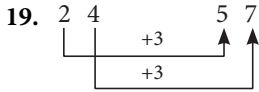
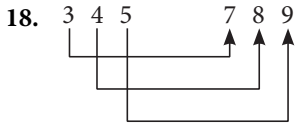
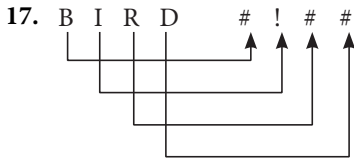




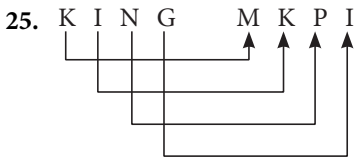
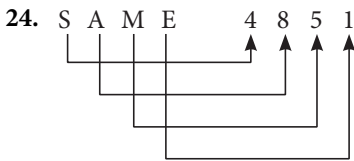
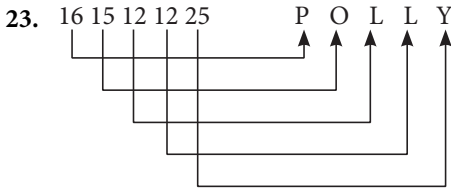
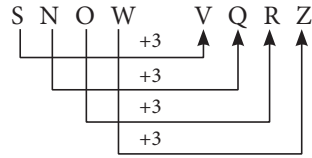
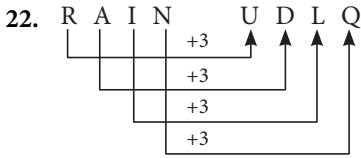
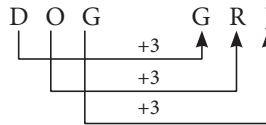
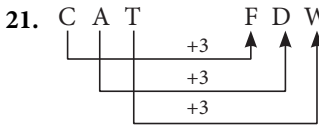
11. A B C  $\rightarrow$  1, 2, 3  
 X Y Z  $\rightarrow$  24, 25, 26



16. J U L Y  $\rightarrow$  10 + 21 + 12 + 25 = 68  
 M A Y  $\rightarrow$  13 + 1 + 25 = 39



20. < + - × ÷ → SCHOOL

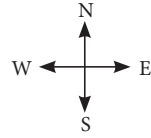




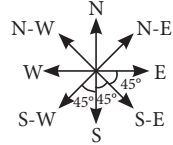
## 4

## DIRECTION SENSE TEST

1. A  $180^\circ$  turn from South points to North.
2. Turning clockwise from North leads to East.
3. A  $90^\circ$  left turn from North points to West.



4. A  $135^\circ$  anti-clockwise turn from South-West ends at East.

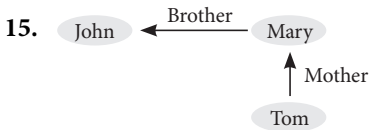


5. Three right turns from North sequentially lead to East  $\rightarrow$  South  $\rightarrow$  West.
6. From South, turning right leads to West, and then turning left leads to South.
7. From West, walking forward, turning left leads to South, and walking forward again keeps her facing South.
8. Rahul is facing North.
9. Pawan is in South-West direction.
10. From West, a  $90^\circ$  right turn leads to North, and another  $90^\circ$  right turn leads to East.
11. Neha will be 10 metres South.
12. After walking 4 metres North, 3 metres West, 4 metres South and 3 metres East, Anita returns to her starting point.
13. Maria is facing North now.
14. From South, a  $90^\circ$  left turn leads to East.
15. Starting and walking halfway around the circle from East leads to West.
16. The girl is 8 metres from her starting point.
17. P is in South direction of Y.
18. He is facing South now.
19. Alex is facing West direction.
20. The hour hand will point in North-West direction.
21. Jaya is one floor below Keerti's home.
22. Irfan's home is exactly two floor above Naheed's home.
23. Rani's home is at the right side on the highest floor.
24. Keerti's home is at the centre of the building.
25. Srinu's home is on the left of Keerti's home.

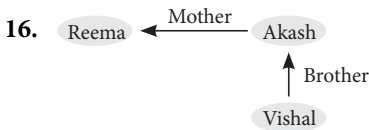
## 5

## FAMILY RELATIONSHIPS

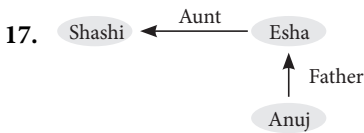
1. Your father's brother is your uncle.
2. Your mother's mother is your grandmother.
3. Your sister's son is your nephew.
4. Your father's sister is your aunt.
5. Your brother's daughter is your niece.
6. Your mother's brother's son is your cousin.
7. Your grandfather's son is your father.
8. Your aunt's daughter is your cousin.
9. Your father's father is your grandfather.
10. Your sister's daughter is your niece.
11. Your mother's mother is your maternal grandmother.
12. We will call him uncle.
13. My siblings have the same parents as you.
14. Mike is Tom's father.



John is Tom's uncle.



Reema is the mother of Vishal.



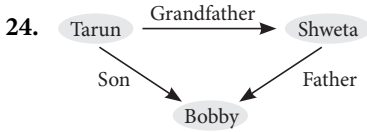
Anuj is the brother of Shashi.

18. Pankaj is the uncle of Leena.
19. David is the brother of Sarah.
20. Mark and Joseph are brothers.
21. Man is the cousin of the woman.



Victoria is the daughter of Charles.

23. Olivia and James are cousins.

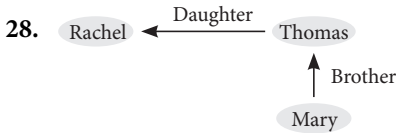


Bobby is the son of Tarun.

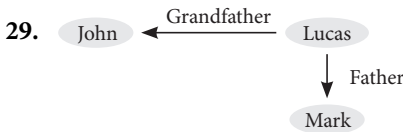
25. Sophia is the sister of Emily.

26. Peter is the uncle of Jane.

27. Michael is the uncle of Olivia.



Rachel is the niece of Mary.



Mark is the son of John.

30. Robert is the cousin of Sarah.

31. Tom is the nephew of Mike.

32. Sam is the cousin of Lucy.

33. Emma is the aunt of Sam.

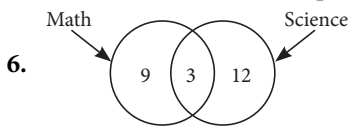
34. Mike is Lucy's uncle.

35. Sarah is the aunt of Tom.

## 6 ANALYTICAL REASONING

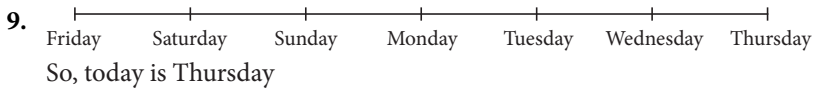
- Tom > Jack > Harry.  
So, Harry is the shortest.
- Chris > Ava > Ben  
So, Chris scored the most points.
- Rachel > Sarah > Tom  
So, Tom finished last.

4. None of them has a cat.  
 5. Oliver scored = 7 points  
 Peter scored =  $7 + 3 = 10$  points



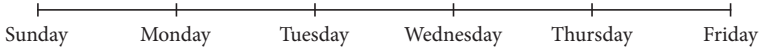
So, 0 students liked neither math nor science.

7. Liam > Jane > Kate  
 So, Kate has fewest pencils.  
 8. No one is sitting between C and D.



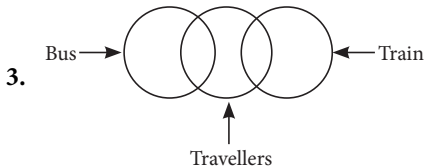
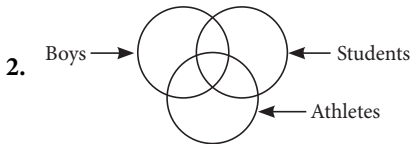
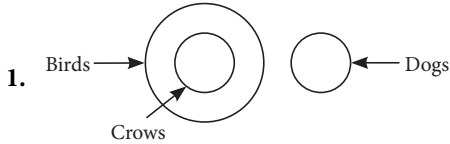
10. 1st November will be Wednesday.  
 11. For a non-leap year, April and July have the same calendar.  
 12. The day will be Tuesday.  
 13. Number of marbles Sara has = 10  
 Number of marbles with Tom =  $10 - 4 = 6$   
 14. January 31st will be Sunday.  
 15. August and October  
 16. January 6th will be the first Monday of the year.  
 17. Today will be Saturday.  
 18. There will be 23 working days.  
 19. February 28th will be a Saturday.  
 20. If the last day (30th) is Thursday, then the 15th is two weeks earlier on a Wednesday.  
 21. Today is Saturday.  
 22. The data will be August 7th.  
 23.  $C > A > B$   
 So, B is the shortest amongst them.  
 24.  $B < A < C$   
 25.  $C > A > B$   
 26. 5 students like neither history nor geography.  
 27. Tom > Sarah > John  
 So, Tom has the most apples.

28. It cannot be said.

29.   
So, today is Friday.

30. 15th April will be a Thursday.

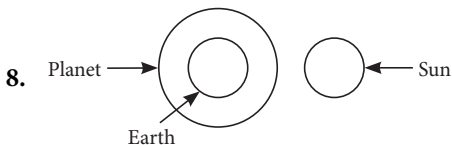
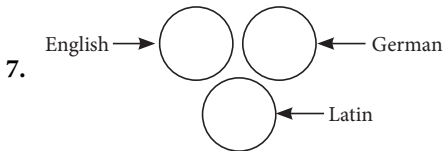
## 7 VENN DIAGRAMS



4. Number of students taking dance class =  $20 + 10 = 30$

5. Number of students who had a dog =  $20 + 12 = 32$

6. Number of people who do not drink water = 10



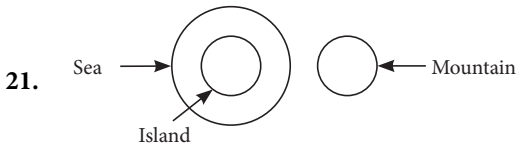
9. Number of children who have both dogs and cats as pets = 3.

10. Number of students who only want to be a teacher = 3.

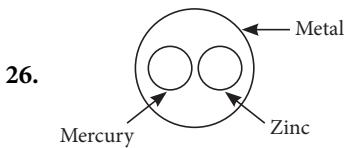
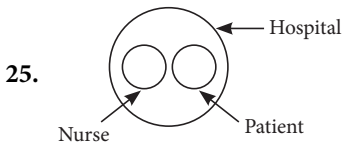
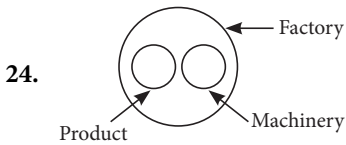
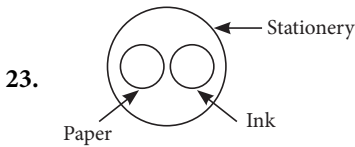
11. Number of students who like all the three colours = 1.

12. Number of children who like whales and snakes but not frogs = 3.

13. Number of students who like only cake = 5.
14. Number of students who like both oranges and apples = 11.
15. The people who can speak only one language =  $I + J + K$ .
16. Number of children who only like pizza = 6.
17. The elements of set A = 2, 3, 8, 4, 7.
18. The number that lies inside all the figures = 2.
19. The numbers that lie inside any two figures = 5, 1.
20. The number that lies only inside the triangle = 9.



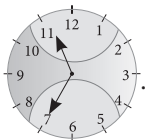
22. Number of people who watch tennis match =  $4 + 11 = 15$ .



## 8 CLOCK AND CALENDAR

1. The time is 4 : 30.
2. The minute hand rotates  $90^\circ$  in 15 minutes.
3. At 6 : 00, the hour and minute hands point in exactly opposite directions.

4. A leap year occurs every 4 years.
5. The hour and minute hands overlap 22 times in 24 hours.
6.  $3 : 45 + 100 \text{ minutes} = 5 : 25$
7. The next time they will coincide at 1 : 05.
8. 15 eggs can be boiled in such time.
9. 97 years.
10. March + April + May + 1 day of June =  $31 + 30 + 31 + 1 = 93$  days.
11. At 6 : 45.
12. The hour and the minute hands of a clock point in exactly opposite directions, 22 times.
13. January 1st and December 31st is a Sunday.
14. 3rd of the same month is a Friday.
15. 31st will be the last Saturday.
16. February is the shortest month of the year.
17. The time will be 12 : 40 p.m.
18. The movie will finish at 4 : 45 p.m.
19. Sarah spent 1 hour 15 minutes doing her homework.
20.  $9:45 \xrightarrow{1 \text{ hr}} 10:45 \xrightarrow{1 \text{ hr}} 11:45 \xrightarrow{1 \text{ hr}} 12:45 \xrightarrow{1 \text{ hr}} 1:45 \xrightarrow{45 \text{ min}} 2:30$   
 $1 \text{ hour} + 1 \text{ hour} + 1 \text{ hour} + 1 \text{ hour} + 45 \text{ min} = 4 \text{ hours } 45 \text{ minutes.}$
21. 1 minute = 60 seconds  
 $5 \text{ minutes} = (5 \times 60) \text{ seconds}$   
 $= 300 \text{ seconds}$
22. 1 day = 24 hours  
 $2 \text{ days} = (24 \times 2) \text{ hours}$   
 $= 48 \text{ hours}$
23. 1 hour = 60 minutes  
 $1/2 \text{ hour} = 60 \text{ min} \div 2 = 30 \text{ minutes}$
24. March + April =  $17 + 10 = 27$  days
25. The time will be 3 : 15.



26. The time is
27. The time will be 5 : 30. The hour hand will be between 5 and 6.