Mastering Aptitude and REASONING

Teacher's Help Book (5)

PLANET X BOOKS
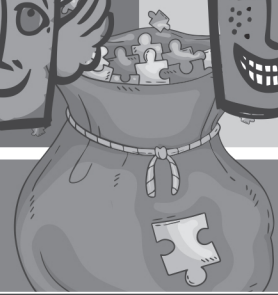
Mastering Aptitude and REASONING

5

1 ANALOGY

1. A group of birds is a flock and a group of fish is a shoal.
2. Descent is related to coming down; the opposite of down is Ascent.
3. Quiet is the opposite of loud and slow is the opposite of fast.
4. A seed grows into a tree, a child grows into an adult.
5. A library contains books, while a museum contains artifacts.
6. A pencil is used for writing and scissors are used for cutting.
7. Winter is associated with cold and summer is associated with hot.
8. Whisper is the opposite of shout, and stroll is the opposite of run.
9. The shapes are changing sides and becomes a complete figure. ✕ changes to ◇.
10. The correct answer is ▽ .
11. The correct answer is ◡ .
12. Subtract 20 in the first pair, apply the same logic to 999.
    (999 – 20) = 979
13. Each number is doubled. Multiply 123 by 2.
    $$302 \times 2 = 604$$
    $$123 \times 2 = 246$$
14. Each number is halved.
 $$240 \div 2 = 120$$
    $$406 \div 2 = 203$$
15. Square the first number. Apply the same logic to 15.
    $$5^2 = 25; \qquad 15^2 = 225$$
16. Subtract 20 in the first pair; apply the same logic to 520.
    $$720 – 20 = 700; \qquad 520 – 20 = 500$$

17. Reverse alphabetical order of corresponding letters. The correct answer is TV.

18. Reverse each letter's position in the alphabet. The correct answer is FA.

19. Reverse alphabetical order sequence is used. The correct answer is YZ.

20. Reverse alphabetical grouping decreases by 3 letters. The correct answer is QPO.

21. The second number is the square of the first number.
    $\Rightarrow$ $3^2 = 9$; $5^2 = 25$

22. Multiply the first number by 3 to get the second number.
    $\Rightarrow$ $8 \times 3 = 24$; $9 \times 3 = 27$

23. Multiply the first number by 2.
    $\Rightarrow$ $50 \times 2 = 100$; $100 \times 2 = 200$

24. Multiply the first number by 4.
    $\Rightarrow$ $2 \times 4 = 8$; $10 \times 4 = 40$

25. The correct answer is one hundred and ninety eight.

26. Reverse the letters. The correct answer is GOF.

27. Swap adjacent pairs of letters. The correct answer is RGENE.

28. Each letter is obtained by skipping two letters. The correct answer is RUDQJH.

O R A N G E   R U D Q J H
                +2
                +2
                +2
                +2
                +2
                +2
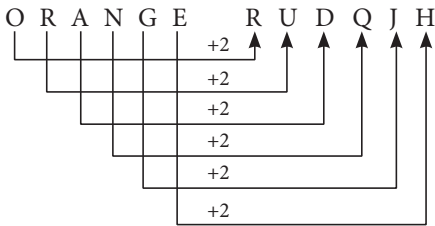
29. Substitute each letter with a specific pattern shift. The correct answer is CKVD.

30. Reverse the entire word.
    FLOWER ⟶ REWOLF

31. The correct answer is Mirror image.

32. The correct answer is Mathematics.

33. Books are associated to library, whereas, posters are kept at a gallery.

34. Water is an essential element of an aquarium; sand is essential for a playground.

2 ODD ONE OUT

1. All other figures are symmetrical, except option (d).

2. All other figures have arrows moving in clockwise direction, except in option (b), in which the arrow is moving in anti-clockwise direction.

3. All other options have figures divided into four equal parts, except option (d).

4. The position of dots is different in option (a).

5. Except option (b), all others are gases.

6. Except option (d), all other options are literary forms.

7. Except option (c), all other options are renewable source of energy.

8. Except option (b), all other figures are made up of line segments.

9. All other options are metals, except option (d).

10. Train, car and motorcycle are motorized vehicles, whereas a bicycle is not.

11. Dog, cat and parrot are domestic animals, but a lion is wild.

12. All other numbers are multiples of 9, except option (b) i.e. 39.

13. All other numbers are multiples of 2, except option (d).

14. The correct answer is option (a).

15. Except option (c), all other options have alphabets in increasing order.

16. Except option (d), all other options have one letter skipping in between them.

17. The correct answer is option (c).

18. Only option (c) is in sequential order, while other options are not in sequential order.

19. Except option (a) all other options are in reverse order.

20. The correct answer is option (b).

21. Only option (d) i.e. 48 is not a power of 2, while others are power of 2.

22. All others are writing tools, whereas a book is for reading.

23. A circle is not made of line segments, whereas other figures are made up of line segments.

24. All others are marine animals, while the crocodile is an amphibian.

25. Others are positive emotions, while 'sad' is negative.

3 ▷ PATTERNS

1. The pattern is :
   1; 1 + 1 = 2; 2 + 2 = 4; 4 + 3 = 7; 7 + 4 = 11

2. The pattern is :
$$99 - 9 = 90$$
$$90 - 8 = 82$$
$$82 - 7 = 75$$
$$75 - 6 = 69$$

3. Divide each number by 5.
$$25 \div 5 = 5$$
$$5 \div 5 = 1$$
$$1 \div 5 = \frac{1}{5}$$
$$\frac{1}{5} \div 5 = \frac{1}{25}$$

4. Add 5, 10, 15, 20 to each number.
$$0 + 5 = 5$$
$$5 + 10 = 15$$
$$15 + 15 = 30$$
$$30 + 20 = 50$$

5. Divide each number by 3.
$$3 \div 3 = 1$$
$$1 \div 3 = \frac{1}{3}$$
$$\frac{1}{3} \div 3 = \frac{1}{9}$$
$$\frac{1}{9} \div 3 = \frac{1}{27}$$

6. Add 2, 3, 4, 5, 6 and so on to each number.
$$9 + 2 = 11$$
$$11 + 3 = 14$$
$$14 + 4 = 18$$
$$18 + 5 = 23$$
$$23 + 6 = 29$$

7. Divide each number by 2.
$$360 \div 2 = 180$$
$$180 \div 2 = 90$$
$$90 \div 2 = 45$$

8. In this pattern, the first digit is decreasing by 1 and second and third digits are increasing by 1.

9. Add 3, 5, 7, 9, 11, 13 and so on to each number.
$$4 + 3 = 7$$
$$7 + 5 = 12$$
$$12 + 7 = 19$$
$$19 + 9 = 28$$
$$28 + 11 = 39$$

10. $6 + 4 = 10 - 5 = 5$
$7 + 5 = 12 - 6 = 6$
$12 + 4 = 16 - 8 = 8$

11. The pattern is :
$$2^2 + 4^2 = 4 + 16 = 20$$
$$3^2 + 9^2 = 9 + 81 = 90$$
$$1^2 + 5^2 = 1 + 25 = 26$$

12. The correct answer is 30.

13. The order of symmetry is infinite.

14. The pattern is :
$$1^3 = 1$$
$$2^3 = 8$$
$$3^3 = 27$$
$$4^3 = 64$$

15. According to the pattern, the correct answer is 17.

16. The pattern is :
$$(4 \times 5) - (2 \times 3) = 20 - 6 = 14$$
$$(1 \times 10) - (2 \times 2) = 10 - 4 = 6$$
$$(7 \times 5) - (4 \times 3) = 35 - 12 = 23$$

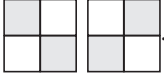17. The pattern is :
$$10^2 = 100$$
$$9^2 = 81$$
$$8^2 = 64$$
$$7^2 = 49$$
$$6^2 = 36$$

18. The correct answer is Z.

19. The arrows are moving in clockwise direction.

20. The correct answer is .

21. The correct answer is 184.

22. The pattern is :

$$(2 + 2) + 1 = 5$$
$$(5 + 5) + 2 = 12$$
$$(12 + 12) + 3 = 27$$
$$(27 + 27) + 4 = 58$$
$$(58 + 58) + 5 = 121$$

23. The total of numbers in columns is 12.

$$3 + 2 + 7 = 12$$
$$1 + 6 + 5 = 12$$
$$8 + 4 + 0 = 12$$

24. The pattern is :

$$4 \times 3 = 12$$
$$5 \times 3 = 15$$
$$20 \times 9 = 180$$

25. The pattern is :

$$(13 \times 8) = 104 - 4 = 100$$
$$(7 \times 19) = 133 - 4 = 129$$
$$(6 \times 18) = 108 - 4 = 104$$

26. The pattern is :

$$(2 + 1 + 3) = 6^2 = 36$$
$$(4 + 2 + 1) = 7^2 = 49$$
$$(2 + 4 + 3) = 9^2 = 81$$

27. The correct answer is 22.

28. The correct answer is 34.

29. The pattern is :

$$100 = 10^2$$
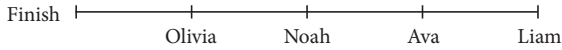$$81 = 9^2$$
$$64 = 8^2$$
$$49 = 7^2$$
$$36 = 6^2$$
$$25 = 5^2$$

1. The sequence is :

   Finish |————————+————————+————————+————————|
                   Olivia   Noah   Ava   Liam

   So, Olivia won the race.

2. Arrange the books based on their positions relative to others.
   So, science is in the middle.

3. Sequence the order of playing based on the given clues.
   So, Neeta played first.

4. Amit's position from the left end is 27th.

5. Add Sunil's ranks from top and bottom, then subtract 1 from the total number of students.
   $\Rightarrow$ 9 + 38 = 47
   $\Rightarrow$ 47 – 1 = 46

6. Alok's rank is 32 from the last.

7. |————+————+————+————+————|
   Heavy   D   B   A   C   Light
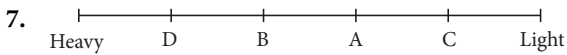
   So, D is the heaviest.

8. Add boys to make the total 28, ensuring Rohan's positions remain correct.
   So, 13 boys should be added.

9. Arrange boys based on height clues to find the tallest.
   So, Raghu is the tallest.

10. Kim's school is the smallest.

11. The Mall city is the largest amongst all.

12. Determine proximity to the hospital based on given distances. C lives closest to the hospital.

13. The scores are shown in the given way:

    ←————+————+————+————+————→
    High   B   C   A   D   Low

    So, player B scored the highest.

14. Arrange the heights of the houses to find the tallest.
    So, the yellow house is the tallest.

15. Compare scores to find who scored the lowest.
    So, Latika scored the lowest.

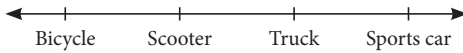16. Determine the middle person based on the positions of the others.

17. The rank is given below :

| Laptop | Textbook | Pencil | Feather |

18.

| Cat | Dog | Horse | Elephant |

19.

| Bicycle | Scooter | Truck | Sports car |

20. There are 8 students between Amit and Ravi.

21. The rank is :
Seed, Plant, Tree, Wood, Table

22. Order life stages in chronological sequence is :
Infancy, Childhood, Puberty, Adulthood

23. Add Sohan's ranks from the top and bottom, then subtract 1 from the total number of students.
$\Rightarrow$ 7 + 26 = 33
$\Rightarrow$ 33 – 1 = 32

24. Deduce Rohit's previous position from the right by considering his shift. His earlier position from the right end of the row is second.

25. Compare marks of the individuals to identify the one with the highest marks. So, Harshit obtained the highest marks.

26. Meera's rank would be 3rd.

27. Rahul's new score = 88 + 5 = 93.
So, Rahul would move to 2nd place.

28. The difference = 95 points – 82 points = 13 points.

29. Neha would move upto 3rd place.

30. According to this criteria, 4 students will receive the certificate.

5 BLOOD RELATIONS

1. Priya is the mother of Rita.

2. The girl is the daughter-in-law to Tina.

3. Shyam is nephew to Vijay's wife.

4. Aman is the cousin to Ritu.

5. Leela is the sister of the boy.

6. Sunita is the grandmother to Anita.

7. Patrick is the uncle of Karen.

8. A is the uncle of D.

9. C is the son-in-law of D.

10. The lady is the mother of Sophia.

11. The boy is the brother of Mark.

12. Rita is the sister of John.

13. Tim is the sister of the boy.

14. The lady is the wife of Tom.

15. Pankaj is the father of Mohan.

16. Lalit is the father-in-law of the person.

17. Eena is the cousin of Diya.

18. Emily is the cousin of Mike.

19. The relationship is the sister between them.

20. Chris and John are uncle and nephew.

21. D is the mother of A.

22. B is the nephew of D.

23. R is the mother of B.

24. P is the aunt of S.

25. A is the mother-in-law of E.

6 DIRECTION SENSE TEST

1. Turning 90° to the right from East leads to South.

2. Early morning shadow will fall in the opposite direction of the Sun i.e. the West.

3. A 270° right turn from the market takes you to the school.

4. Rohan was facing West at first.

5. Payal turned (90° + 90° + 90°) = 270°.

6. If the head faces downward and the face is towards West, the left hand will point North.

7. Adjust directions based on the given information. So, South will become North-East.

8. Manoj was facing South-East at first.

9. Combine Raj's movements and directions to deduce his return direction.

10. Tom is facing the library, which is East of the cafe.

11. From the swimming pool, the playground is to the South.

12. Analyze Anuj's sequential movements to find his final direction. He is in North-East with respect to the starting point.

13. Three anti-clockwise 90° turns from South-East will lead to the Club.

14. If the bus faces West and Sunil walks to the right, he is heading North.

15. Analyze the path described to determine the initial direction of the journey. So, the correct answer is North.

16. Two right turns and one left turn from North lead to East.

17. The hour hand will point at East.

18. The hour hand point in North-East.

19. A 270° clockwise turn from West leads to South.

20. A clockwise turn from South-West to face North involves a 135° angle.

21. The correct answer is 50 metres, North-East.

22. Determine the combined distance Ram covers and her final position from the starting point. So, the correct answer is 15 km.

23. The distance between Mohan and Rohit is 9 km.

24. The correct answer is South.

25. Point Q is 10 metres West from the point P.

26. Puneet is in East of Sudhir.

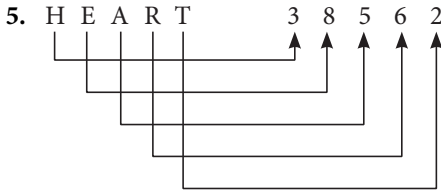27. Rajan is 20 metres North from his original position.

7 CODING DECODING

1. P E N C I L   Q F O D J M

ERASER   FSBTFS

2.

P	O	N	D		R	S	T	L		H	E	A	R		J	I	G	Z

+2   +2
+3   +3
+4   +4
+5   +5
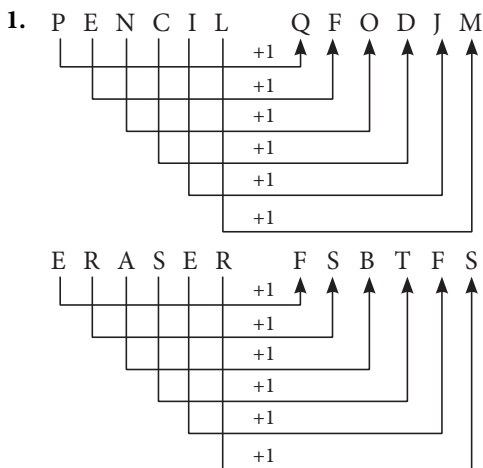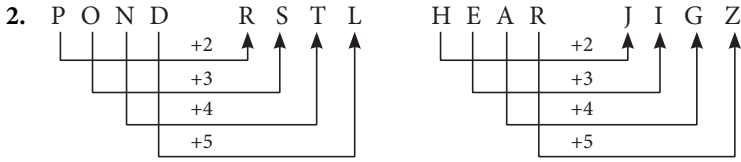
3. Apply the pattern for 'WALK' to 'XCOD' and apply it to 'RIDE'.
So, the correct code is SKGI.

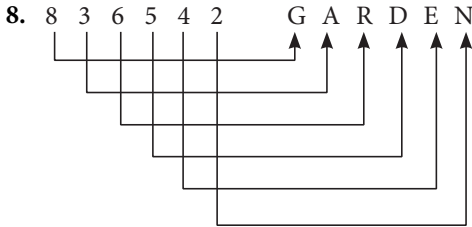**4.** Reverse the word and retain the same alternating duplication pattern as 'PUPPET'.
So, the correct code is ELCREV.

5.

H	E	A	R	T		3	8	5	6	2

2 3 6 8 8 → T H R EE

6. The correct code for SEARCH is 214673.

7. The correct code for TANG is rnak.

8.

8	3	6	5	4	2		G	A	R	D	E	N

5 4 3 6 → D E A R

9. CHAIN → 9 – 14 – 7 – 15 – 20

10. SMART → 24 – 18 – 6 – 23 – 28

11. P T A → 18 – 22 – 3

12. The correct code is MLIBOE.

13.

R	O	A	R		U	R	D	U		U	R	D	U		X	U	G	X

+2   +2
+2   +3
+2   +4
+2   +5
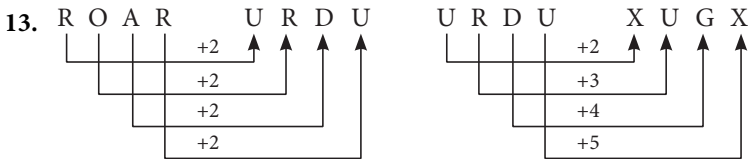
So, the correct code is XUGX.

14. The code for CALICUT is 8251896.

15. The correct answer is Red.

16. The Sun rises in the East and East is called North.

17. Mathematics involves numbers and Mathematics is called History.

18. Hockey is the national game of India and Hockey is called Rugby.

19. We live on the planet Earth and Earth is called Jupiter.

20. We find sharks in the ocean and ocean is called desert.

21. D O G → 4 + 15 + 7 = 26
    C A T → 3 + 1 + 20 = 24

22. The code for 'STAR' is 'ARST'.

23. The code for 'GREEN' is '59653'.

24. The code for 'LOOK' is '4116'.

25. The code for 'FROWN' is 'NFWOR'.

8 > MIRROR AND WATER IMAGES

1. The correct mirror image is ‘FIXING’ (mirrored).

2. The correct mirror image is ‘PENCIL’ (mirrored).

3. The correct mirror image is ‘INDIA’ (mirrored).

4. The correct mirror image is ‘MATHS’ (mirrored).

5. The correct mirror image is ‘WHITE’ (mirrored).

6. The correct mirror image is ‘VERBAL’ (mirrored).

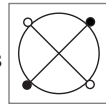7. The correct mirror image is ‘84569’ (mirrored).
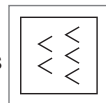
8. The correct mirror image is .
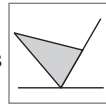
9. The correct mirror image is .
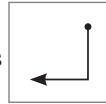
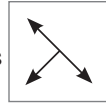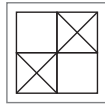10. The correct mirror image is .

11. The correct mirror image is .

12. The correct mirror image is .

13. The correct water image is .

14. The correct water image is .
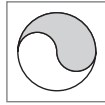
15. The correct water image is ΛCՈ⅃ϱϱ.

16. The correct water image is ꙄEꓘΛICE.

17. The correct water image is ⅃Ƨ83.

18. The correct water image is HE⅃⅃O.

19. The correct water image is ꓑEOꓑ⅃E.

20. The correct water image is B∀Иꓘ׀ИᏩ.

21. Your left side appears on the right side of your image.

22. The correct answer is RORRIM.

23. The reflection appear to move up and down.

24. The watch will appear in your right wrist.

⑨ LOGICAL VENN DIAGRAMS

1. Ten sports and Neo sports are both sports channels.

2. Musicians can be females and daughters.

3. All fathers and brothers are males. Some brothers are also fathers.

4. All engineers are literates. Some farmers are literates.

5. Some mothers are aunts. Some aunts are doctors. Some doctors are mothers.

6. All males are grandfathers and fathers. All grandfathers are fathers.

7. A painter can be a lawyer. A lawyer can be a singer. A singer can be a painter.

8. Banana is a fruit. Fruit is a food.

9. Plates and bowls are both crockery.

10. Pigeons are birds. Dog is a different animal.

11. 17 people are neither artists nor players.

12. 3 doctors are both players and artists.

13. 25 artists are players.

14. 25 players are neither artists nor doctors.

15. 30 artists are neither players nor doctors.

16. The correct answer is S.

17. The correct answer is T.

18. 2 men are healthy but not old.

19. Lions are carnivores but cow is a herbivorous animal.

20. Some boys are students. Some students are athletes. Some athletes are boys.

10 ⟩ LOGICAL PUZZLES

1.

×	20	11	[9]
2	[40]	22	18
6	120	[66]	[54]

2.

×	9	8	[11]
10	[90]	80	110
3	36	[32]	[44]

3.

×	12	13	[14]
4	[48]	52	56
3	36	[39]	[42]

4.

×	15	11	[3]
12	[180]	132	36
9	135	[99]	[27]

5.

×	9	7	[9]
[11]	[99]	77	99
12	108	[84]	[108]

6.

×	12	13	[5]
10	[120]	130	50
6	72	[78]	[30]

7.

×	8	11	[3]
[4]	[32]	44	12
5	40	[55]	[15]

8. Megha is shortest in height.

9. Garima is shorter than Manha but taller than Priya.

10. Manha is taller than Garima.

	Hockey	**Volleyball**	**Baseball**	**Cricket**	**Football**
Ravi	✓	✓	✓		
Kunal	✓	✓		✓	
Gaurav		✓	✓	✓	✓
Michael			✓		✓
Sachin	✓		✓		✓

11. Kunal is good in Hockey, Cricket and Volleyball.

12. Gaurav is good in Baseball, Cricket, Volleyball and Football.

13. Ravi is good in Baseball, Volleyball and Hockey.

14. Number of working days = 28 – 7 – 3 = 18 days.

15. B is 17 years old.

16. C is 4 years old.

17. Daughter's age = 5 years
My age = 5 × 5 years = 25 years

18. Ranjit is the thinnest.

19. The date of Ria's birthday is 15th March.

20. The correct answer is = 1 × 2 × 3 × 4 × 5 × 6 × 7 × 8 × 9 = 60480

21. The age of C is 45 years.

22. The age of F is 22 years.

23. The age of E after 5 years is 26 years.

24. The age of D, 15 years ago was 6 years.

25. G is older than E by 21 years.

26. H is older to B by 1 year.

27. The age of K is 33 years.

28. A is older to L by 14 years.

29. The age of I after 7 years is 73 years.

30. J is younger to C by 3 years.