LOGICAL REASONING
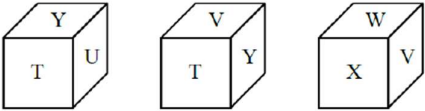
1. If in a certain code language, GUIDELINES is written as GFKWIUGPKN, then how will SEPARATELY be written in the same code language?
(a) TBRHUANWCD (b) UCRGVBNGVC (c) TCRGUANGVC (d) UBRIUBNHVC

2. Study the given information and answer the following question.
P * Q means P is the sister of Q.
P % Q means P is the father of Q.
P $ Q means P is the brother of Q.
P + Q means P is the mother of Q.
Then how will H be related to G in H%E*D$G?
(a) Brother (b) Father (c) Mother (c) Uncle

3. Vikrant walks 70 m to the East, then turns to his left and walks 60 m, then he turns left again and walks 20 m. Finally he turns towards right and walks 60 m. How far and in which direction is he now from the starting point?
(a) 120 m, South-West (b) 130 m, North
(c) 130 m, North-East (d) 120 m, South-East

4. Three positions of a cube are shown below. Which of the following alphabets is on the face opposite to the face having alphabet T?

(a) X (b) U (c) W (c) V

5. If 'A' denotes '×', 'B' denotes '÷', 'C' denotes '+' and 'D' denotes '−', then what is the value of 275B25D12A2C70 ?
(a) –57 (b) 69 (c) 57 (d) 71

6. In a row of girls, Kavya is 10th from the left end while Radha is 12th from the right end. Now, both of them interchange their positions such that Radha becomes 18th from the right end. How many girls are there in the row?
(a) 27 (b) 29 (c) 30 (d) 28
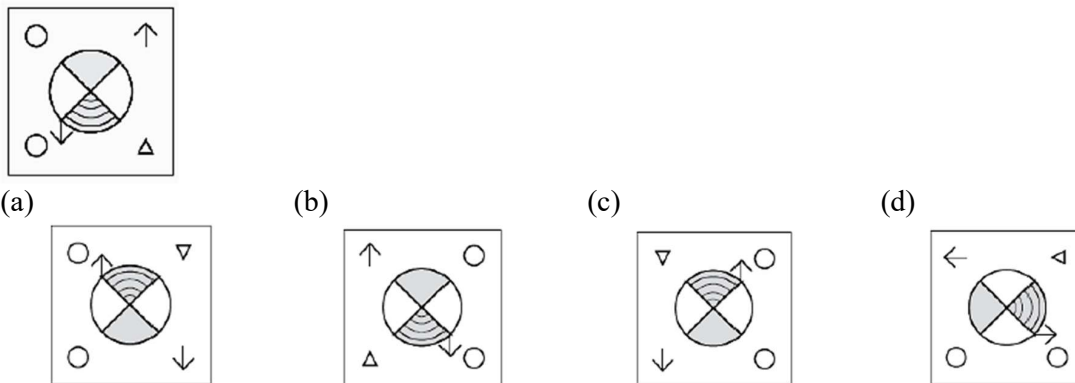
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7. A building has seven floors numbered one to seven, in such a way that the ground floor is numbered one, the floor above it, number two and so on such that the top most floor is numbered seven. One out of seven people, P, Q, R, S, T, U and V lives on each floor. P lives on fourth floor. T lives on the floor immediately below U 's floor. U does not live on second or the seventh floor. R lives on third floor. Q does not live on a floor immediately above or below R 's floor. S does not live on the topmost floor. V does not live on any floor below T 's floor. Who lives on the top most floor?
   (a) Q   (b) V   (c) T   (d) U

8. The question consists of a set of three figures P, Q and R showing a sequence of folding of a piece of paper. Fig. (R) shows the manner in which the folded paper has been cut. Select a figure from the options which would most closely resembles the unfolded form of fig. (R).
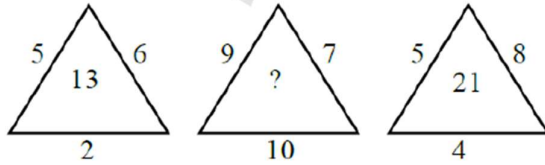

P   Q   R

   (a)   (b)   (c)   (d)
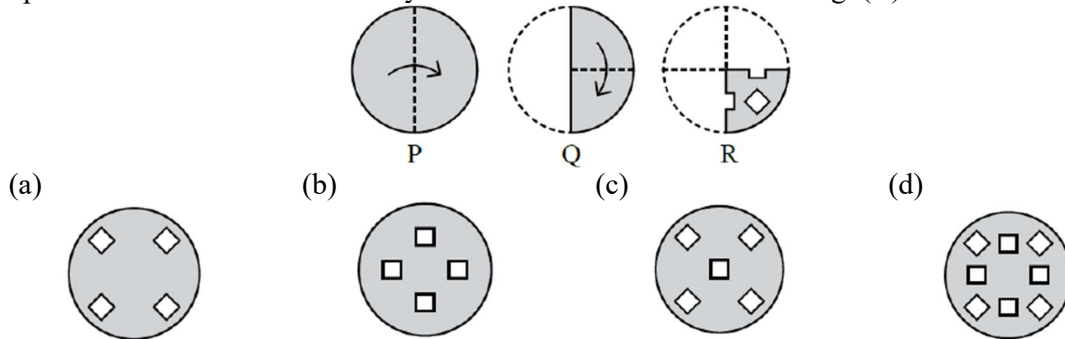
9. Find the water image of the given figure.

   (a)   (b)   (c)   (d)
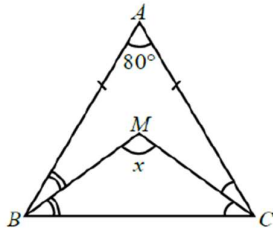

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10. Find the missing number, if same rule is followed in all the three figures.

(a) 48   (b) 46   (c) 37   (d) 44

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11. In the given figure, find the value of x, if $\angle BAC = 80^\circ$ and $AB = AC$.

(a) 110º   (b) 130º   (c) 95º   (d) 85º

12. If diagonals of a quadrilateral bisect each other at right angles, then it is a
(a) Parallelogram   (b) Rectangle   (c) Rhombus   (d) Trapezium

13. Simplify: $\dfrac{5^{n+2} - 6 \times 5^{n+1}}{13 \times 5^n - 2 \times 5^{n+1}}$

(a) 1   (b) 0   (c) $\dfrac{5}{3}$ (d) $-\dfrac{5}{3}$

14. Which smallest number should be added in 454189 to make it a perfect square number?
(a) 68   (b) 92   (c) 87   (d) 58

15. If $x - \dfrac{1}{x} = \sqrt{7}$, then find the value of $x^2 + \dfrac{1}{x^2}$.
(a) 7   (b) –7   (c) 9   (d) –9

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16. If $\left(\dfrac{5}{7}\right)^{-4x} \times \left(\dfrac{7}{4}\right)^{-7} = \left(\dfrac{7}{5}\right)^{9}$, then find the value of x.
   (a) 5   (b) 6   (c) 3   (d) 4

17. Manish is 7 years younger than his brother Sumit. After 6 years, Manish's age will be 7 years more than half the age of Sumit. Find the present age of Sumit.
   (a) 18 years   (b) 27 years   (c) 22 years   (d) 15 years

18. A can complete a work in 15 days, B can do the same work in 12 days. If B started the work alone and worked for 8 days and left the work, then in how many days A alone can finish the remaining work?
   (a) 9 days   (b) 7 days   (c) 6 days   (d) 5 days

19. If the average of the data 12, 9, 18, (x + 2), 30, 31 8, x + 4, 39, 34 is 22.9, then find the value of x.
   (a) 22   (b) 23   (c) 20   (d) 21

20. Find the square of $(n+1)$, if $11\sqrt{n} = \sqrt{343} + \sqrt{112}$.
   (a) 8   (b) 7   (c) 64   (d) 49

21. 35 students participate in a debate competition. Out of these, 13 are girls and rest are boys. One of the student is declared as winner. The probability that the winner is a boy, is
   (a) $\dfrac{8}{25}$ (b) $\dfrac{8}{33}$ (c) $\dfrac{17}{33}$ (d) $\dfrac{22}{35}$

22. $0.12\overline{3}$ can be expressed in rational form as
   (a) $\dfrac{900}{111}$ (b) $\dfrac{111}{900}$ (c) $\dfrac{123}{10}$ (d) $\dfrac{121}{900}$

23. The lengths of the sides of a triangle are 5 cm, 12 cm and 13 cm. Find the length of perpendicular from the vertex opposite to the side whose length is 13 cm.
   (a) $\dfrac{13}{60}$ cm   (b) $\dfrac{60}{13}$ cm   (c) $\dfrac{17}{60}$ cm   (d) $\dfrac{60}{17}$ cm

24. If the difference between the compound interest and simple interest on a certain sum at 4% per annum for 2 years is Rs. 200, then find the sum.
   (a) Rs. 1,55,000   (b) Rs. 1,25,000   (c) Rs. 1,22,500   (d) Rs. 1,45,000

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25. The population of a town is 126800. It increases by 15% in the first year and decreases 20% in the second year. Find the population of town at the end of 2 years.
    (a) 174984   (b) 116656   (c) 135996   (d) 145820

26. A swimming pool, 30 m long has a depth of water of 80 cm at one end and 2.4 m at the other end. Find the area of the each vertical cross-section of the pool along the length.
    (a) 54 m^2 (b) 48 m^2 (c) 36 m^2 (d) 42 m^2

27. The figure given below is made up of one big circle, two identical medium circles and two identical small circles. The ratio of the radius of the small circle to the radius of the medium circle is 2 : 3.
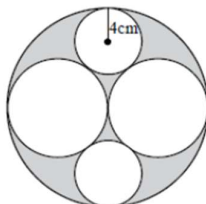
    (A) What is the total area of the shaded part in the figure?
    (B) What fraction of the big circle is unshaded?

	(A)	(B)
(a)	44 πcm^2	5/18
(b)	40 πcm^2	5/18
(c)	40 πcm^2	13/18
(d)	44 πcm^2	13/18

28. Which of the following options shows the quotient and remainder when $8x^3 - 4x^2 + x - 3$ is divisible by x – 2?
    (a) Quotient = $8x^2 + 12x + 25$; Remainder = 47
    (b) Quotient = $4x^2 + 12x - 20$; Remainder = 4x + 2
    (c) Quotient = $8x^2 - 10x + 5$; Remainder = 18
    (d) Quotient = $4x^2 - 6x + 10$; Remainder = 15

29. Find the value of reciprocal of $(a+b)^{-1}(a^{-1}+b^{-1})$
    (a) ab   (b) a/b   (c) 1/ab   (d) $(ab)^2$

30. The length of a hall is 20 m and width 16 m. The sum of the areas of the floor and the roof is equal to the sum of the areas of the four walls. Find the height of the hall.
    (a) 6.45 m   (b) 7.18 m   (c) 8.89 m   (d) 9.20 m

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