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## MATHEMATICAL REASONING

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1 What number should be added to  $0.25 \times 2.5$  to get 1?

[A] 0.375

[B] 0.0375

[C] 0.05

[D] 0.750

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2 The LCM of two numbers is  $x$  and their HCF is  $y$ . The product of two numbers is

[A]  $x \div y$

[B]  $y \div x$

[C]  $x + y$

[D]  $xy$

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3 Which of the following statement(s) is/are correct?

(i) -5 is less than 0

(ii) -3 lies between -4 and 4

(iii) The multiple inverse of -1 is a positive number

[A] (i), (ii) & (iii)

[B] (i) & (ii) only

[C] (iii) only

[D] (ii) & (iii) only

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4 The highest power of the variable in a polynomial is called

[A] Constant

[B] Coefficient

[C] Degree

[D] None of these

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5 The solution of  $0.2(2x - 1) - 0.5(3x - 1) = 0.4$  is

[A]  $\frac{1}{11}$

[B]  $-\frac{1}{11}$

[C]  $\frac{3}{11}$

[D]  $-\frac{3}{11}$

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6 The value of  $-6 - [-3 + 12 \div 6 - \{7 - (-4 + 20) \div 4\}]$  is

[A] -2

[B] -4

[C] 4

[D] -3

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7 If two supplementary angles differ by  $54^\circ$ , then one of the angles is

[A]  $75^\circ$

[B]  $72^\circ$

[C]  $117^\circ$

[D]  $65^\circ$

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8 Identify the smallest fraction among the following

[A]  $\frac{5}{7}$

[B]  $\frac{7}{9}$

[C]  $\frac{3}{5}$

[D]  $\frac{6}{8}$

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9 At what rate percentage per annum will ₹ 6950 produces ₹ 347.50 as simple interest in 5 months?

- [A] 10% [B] 10.50%  
[C] 11% [D] 12%
- 

10 The degree of the polynomial  $(-20x^4y^3) \times (-5x^7y^2)$  is

- [A] 16 [B] 11  
[C] 5 [D] 6
- 

11 If  $A : B = 7 : 9$  and  $B : C = 6 : 7$  then  $A : C$  is

- [A] 2 : 3 [B] 3 : 2  
[C] 1 : 3 [D] 2 : 7
- 

12 The congruent condition does not valid for triangles is

- [A] SSS [B] ASA  
[C] RHS [D] AAA
- 

13 Salary of a person increased by 20%, then it is decreased by 20%. His change salary is

- [A] 4% decrease [B] 4 % increase  
[C] 8 % decrease [D] No change
- 

14 A letter is chosen at random from the word PROBABILITY. The probability that it is a vowel is

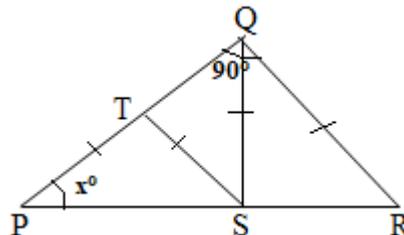
- [A]  $\frac{6}{11}$  [B]  $\frac{3}{11}$   
[C]  $\frac{7}{11}$  [D]  $\frac{4}{11}$
- 

15 Which of the following graph helps to make comparisons between two related pieces of data at the same time?

- [A] Bar graph [B] Pictograph  
[C] Double bar graph [D] Tally chart
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16 In the figure given below,  $PT = TS = SQ = QR$ , angle  $PQR = 90^\circ$  and angle  $QPR = x^\circ$ . The value of  $x$  is

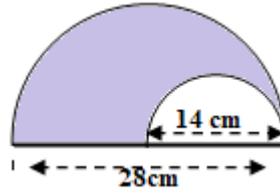
- [A]  $25^\circ$   
[B]  $22.5^\circ$   
[C]  $30^\circ$   
[D]  $27.5^\circ$



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17 Find the area of shaded portion of the following figure

- [A]  $154 \text{ cm}^2$
- [B]  $150 \text{ cm}^2$
- [C]  $201 \text{ cm}^2$
- [D]  $231 \text{ cm}^2$



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18 A and B can do a piece of work in 12 days, B and C in 15 days and C and A in 20 days. In how many days will they finish the work together?

- [A] 16 days
- [B] 10 days
- [C] 9 days
- [D] 5 days

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19 If  $\sqrt{324} \div \sqrt{x} = 2$ , then  $x$  is equal to

- [A] 81
- [B] 64
- [C] 128
- [D] 121

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20 In a school 720 are boys and 40% are girls. The number of girls in the school is

- [A] 475
- [B] 460
- [C] 480
- [D] 490

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21 The adjacent sides of a parallelogram are 8 cm and 9 cm. The diagonal joining the ends of these sides is 13 cm. Its area is

- [A]  $72 \text{ cm}^2$
- [B]  $12\sqrt{35} \text{ cm}^2$
- [C]  $24\sqrt{35} \text{ cm}^2$
- [D]  $150 \text{ cm}^2$

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22 The surface area of a cube is  $216 \text{ cm}^2$ . Its volume is

- [A]  $912 \text{ cm}^3$
- [B]  $216 \text{ cm}^3$
- [C]  $512 \text{ cm}^3$
- [D]  $926 \text{ cm}^3$

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23 The value of the product

$$(a - x) \times (b - x) \times (c - x) \dots \dots \dots (y - x) \times (z - x)$$

- [A]  $a + b + c + \dots \dots \dots + z$
- [B]  $ab + bc + \dots \dots \dots + yz$
- [C]  $abc \dots \dots z$
- [D] 0

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24 In how much time will the simple interest on a certain sum be 0.125 times the principal at 10% per annum?

- [A] 1 year
- [B] 1 year 3 months
- [C] 1 year 4 months
- [D] 1 year 9 months

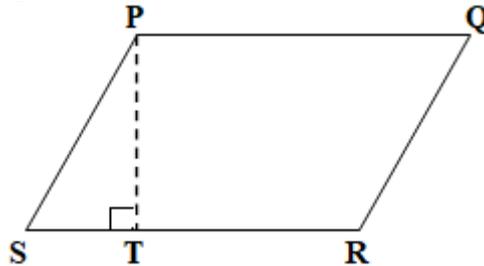
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25 A contractor started construction of a building on 1<sup>st</sup> November 2018 with 250 men to complete the work in 50 days. After 10 days, 250 more men joined the work to complete the construction early. In how many days will the construction complete?

- [A] 45 days [B] 40 days  
[C] 30 days [D] 25 days
- 

26 In the figure given below, PQRS is a parallelogram. PT is perpendicular to SR, SP = 10 cm = SR. If the area of parallelogram is  $80\text{cm}^2$ , then ST is equal to

- [A] 8 cm  
[B] 6 cm  
[C] 10 cm  
[D] 9 cm



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27 If  $P = 13$  and  $Q = -6$ , then  $P^2 - Q^2$  equals

- [A] 133 [B] 144  
[C] 155 [D] 122
- 

28 The duration of a movie is  $3\frac{1}{3}$  hours. The movie is shown in two in equal sessions. What is the duration of each session?

- [A]  $\frac{4}{3}$  [B]  $1\frac{1}{2}$   
[C]  $1\frac{1}{3}$  [D]  $1\frac{2}{3}$
- 

29 A student has to secure 35% marks to pass. He got 80 marks and failed by 60 marks. Find the maximum marks.

- [A] 400 [B] 300  
[C] 200 [D] 100
- 

30 A sum of ₹ 450 amounts to ₹ 495 in 2 years at simple interest. In what time will the sum of ₹ 820 amount to ₹943 at the same rate.

- [A] 3 years [B] 2 years  
[C] 4 years [D] 6 years
- 

31 What will be the sign of the product if we together multiply 199 negative integers and 10 positive integers?

- [A] Positive [B] Negative  
[C] Can't say [D] Data is insufficient
-

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32 If two third, one half and one seventh of a number is added to itself, the result is 37. The number is

[A]  $14\frac{2}{97}$

[B]  $16\frac{2}{97}$

[C]  $18\frac{2}{97}$

[D]  $15\frac{2}{97}$

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33 If the two legs of a right angled triangle are equal and the square of the hypotenuse is  $100\text{ cm}^2$ , then the length of each leg is

[A] 10 cm

[B]  $5\sqrt{2}$  cm

[C]  $10\sqrt{2}$  cm

[D]  $13\sqrt{2}$  cm

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34 What is the value of  $x$  in the following equation?

$$2\frac{x}{6} + 4\frac{5}{12} = 6\frac{7}{12}$$

[A] 0

[B] 1

[C] 2

[D] 3

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35 If  $3^x = 500$ , then the value of  $3^{x-2}$  is

[A]  $\frac{100}{9}$

[B]  $\frac{1000}{9}$

[C]  $\frac{500}{9}$

[D]  $\frac{500}{3}$

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36 The length of a minute hand of a wall clock is 8.4 cm. Find the area swept by it in half an hour.

[A]  $100\text{ cm}^2$

[B]  $110.88\text{ cm}^2$

[C]  $120\text{ cm}^2$

[D]  $130\text{ cm}^2$

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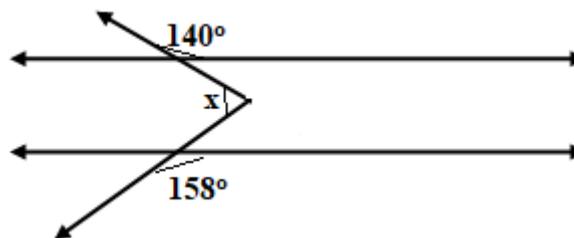
37 In the following figure if line  $p$  is parallel to line  $q$ , then  $x$  equals

[A]  $18^\circ$

[B]  $22^\circ$

[C]  $62^\circ$

[D]  $72^\circ$



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38 Scientific notation of 0.00093456 is

[A]  $9.3456 \times 10^{-5}$

[B]  $9.3456 \times 10^5$

[C]  $9.3456 \times 10^{-4}$

[D]  $9.3456 \times 10^{-3}$

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39 The area of two circle are in the ratio 26 : 36. Then the ratio of their circumference is

[A] 6 : 5

[B] 3 : 4

[C] 4 : 3

[D] 5 : 6

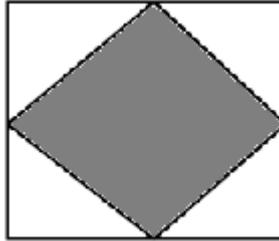
40 Area of shaded square formed by joining the mid points of the sides of a square with area  $16 \text{ m}^2$  is

[A]  $16 \text{ m}^2$

[B]  $4 \text{ m}^2$

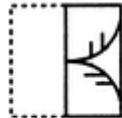
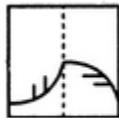
[C]  $10 \text{ m}^2$

[D]  $8 \text{ m}^2$



### LOGICAL REASONING

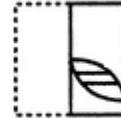
41 Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



[A]



[B]



[C]



[D]

42 In the following question, a matrix of certain characters is given. These characters follow a certain trend, row-wise or column wise. Find out this trend and choose the missing character accordingly.

1	7	9
2	14	?
3	105	117

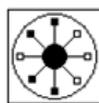
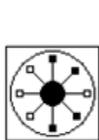
[A] 12

[B] 20

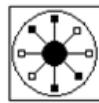
[C] 16

[D] 26

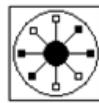
43 Which figure is identical to the first?



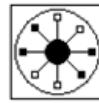
[A]



[B]



[C]



[D]

44 In a family, there are six members A, B, C, D, E and F. A and B are a married couple, A being the male member. D is the only son of C, who is the brother of A. E is the sister of D. B is the daughter-in-law of F, whose husband has died. How is E related to C?

[A] Sister

[B] Daughter

[C] Cousin

[D] Mother

45 Yard is to Fence as Cell is to

- [A] Mitochondria [B] Cytoplasm  
[C] Membrane [D] Nucleus

46 Three of the following four pairs of alphas and numerals have same relationship between their elements as in the case of the pair **PROBLEM : 2948375** and hence form a group. Which one does not belong to the group?

- [A] BORE : 8497 [B] MOEP : 5972  
[C] LBOR : 3849 [D] OMEP : 4572

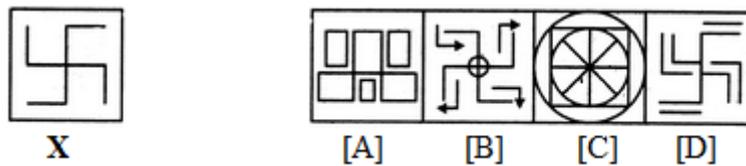
47 Identify the figure that completes the pattern.



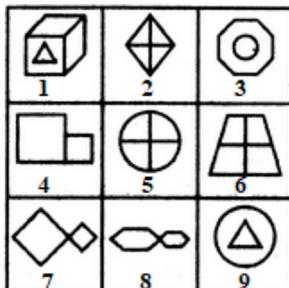
48 One morning after sunrise, Suresh was standing facing a pole. The shadow of the pole fell exactly to his right. To which direction was he facing?

- [A] East  
[B] West  
[C] South  
[D] Data is inadequate

49 Find out the alternative figure which contains figure (X) as its part.



50 Group the given figures into three classes using each figure only once.



- [A] 1, 2, 4; 3, 5, 7; 6, 8, 9  
[B] 1, 3, 9; 2, 7, 8; 4, 5, 6  
[C] 1, 3, 9; 2, 5, 6; 4, 7, 8  
[D] 1, 3, 6; 2, 4, 8; 5, 7, 9