

M. Prakash Institute
30 November 2025

STD IX (2 years) - Entrance Test 1
Time: 3 hours

Note: Q1 to Q10 are of 2 marks each, Q11 to Q30 are of 4 marks each.

Total Marks: 100

Paper Type:AD

Student Receipt number:

Student Name:

Q1 $\frac{\sqrt{48} + \sqrt{432}}{\sqrt{192}} = ?$

Q2 $\frac{3565}{23} + \frac{4675}{x} = 430$. Find x .

Q3 $14 \times 627 \div \sqrt{1089} = x^3 + 141$, and x is a positive real number. Find x .

Q4 The average sale of a car dealer was 25 cars per week. After a promotional scheme, the average sale increased to 31 cars per week. Find the percentage increase in the sale.

Q5 If the work done by $(x - 1)$ men in $(x + 1)$ days to the work done by $(x + 2)$ men in $(x - 1)$ days is in the ratio 9 : 10, find x .

Q6 The difference between 31% and 13% of the same number is 576. Find 2% of that number.

Q7 The average of three numbers is 36 and their ratio is 2 : 3 : 4. Find the smallest of the three numbers.

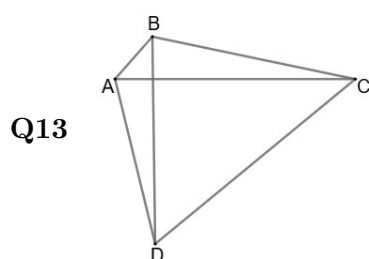
Q8 $\frac{20 + 8 \times 0.5}{80 \times 0.75 - 9 \times 4} = ?$

Q9 How much wire will remain if all 211 pieces of length 7 cm are cut from a wire of length 19.77 m?

Q10 A rectangular field has length $3\sqrt{2} + 5\sqrt{3}$ cm and width $2\sqrt{3} + \sqrt{2}$ cm. If the area of the field is $m + n\sqrt{6}$, find $m - n$.

Q11 If $a + 1 = b + 2 = c + 3 = d + 4 = e + 5 = a + b + c + d + e + 3$, find the value of $5(a + bc + cd + de)$.

Q12 HCF of two numbers having three digits is 17 and their LCM is 714. Find the difference between the two numbers.



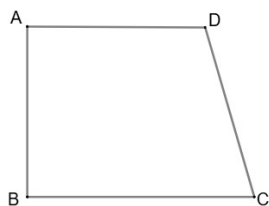
In the given diagram, $AB = 20$, $BC = 70$, $CD = 90$ and AC is perpendicular to BD . Find AD .

Q14 If $a^2 + b^2 = 45$ and $b^2 + c^2 = 40$, find $(a + b + c)$ if a, b, c are natural numbers.

Q15 If $2^{x-1} + 2^{x+1} = 1280$, find 2^{x-4} .

Q16 In a shop, some quantity of ghee contains 60% pure ghee and 40% vanaspati ghee. If 10 kg of pure ghee is added, then the strength of vanaspati ghee becomes 20%. Find the original quantity of ghee.

Q17



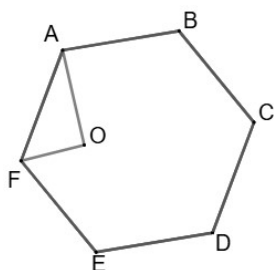
$AB = 24, BC = 32, AD = CD = 25$ and $\angle B = 90^\circ$.
Find P if area of $\square ABCD = 12P$

Q18 Cost of diamond varies as the square of its weight. A diamond broke into 4 pieces with their weights in the ratio $1 : 2 : 3 : 4$. If the loss in the total value of the diamond was 35000, find N if original price was $1000N$.

Q19 Let N be smallest positive integer such that $(N + 2N + 3N + \dots + 9N)$ is a perfect square. Find smallest possible value of N .

Q20 $\sqrt{147} - \frac{4}{3}\sqrt{\frac{1}{3}} - \sqrt{\frac{1}{27}} = \frac{a}{9}\sqrt{3}$. Find a .

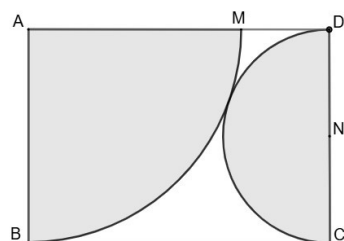
Q21



$ABCDEF$ is a regular hexagon.
 $FO \parallel ED$ and $AO \perp FO$. If area of $\triangle AFO = 6$, find area of $ABCDEF$.

Q22 How many 3-digit numbers satisfy the property that the digit in the middle is the average of the first and the third digit?

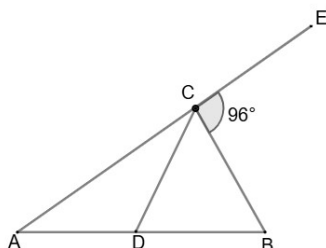
Q23



Area of given rectangle $ABCD = \sqrt{512}$. If area of shaded region $= M\pi$, find M .

Q24 If $2^x = 4^y = 8^z$ and $\frac{1}{2x} + \frac{1}{4y} + \frac{1}{4z} = 4$, then find the value of $16x$.

Q25

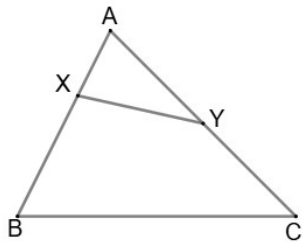


In the given figure, $AD = CD = BC$, Find $m\angle DBC$.

Q26 A cube is painted with red colour on its all six faces. If this cube is cut into 64 equal small cubes, find the number of small cubes which will have only one face coloured.

Q27 If $\frac{a_1}{1-a_1} + \frac{a_2}{1-a_2} + \dots + \frac{a_{25}}{1-a_{25}} = 1$, and
 $a_1 + a_2 + \dots + a_{25} = 1$ then find $\frac{a_1^2}{1-a_1} + \frac{a_2^2}{1-a_2} + \dots + \frac{a_{25}^2}{1-a_{25}}$

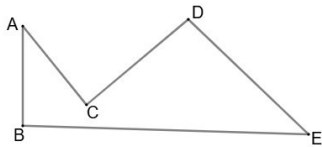
Q28



In $\triangle ABC$, $\frac{AX}{XB} = \frac{1}{2}$ and $\frac{AY}{YC} = \frac{1}{2}$.

If area of $\triangle AXY = 15$, find area of $\triangle ABC$.

Q29



In given diagram,

$AB = AC = 3$, $CD = 4$ and $DE = 5$,
 $\angle B = \angle C = \angle D = 90^\circ$. Find BE^2 .

Q30 The digit in the units place of the number $(71^{51} + 245^{198} - 146^{56})$ is?