M. Prakash Institute **STD IX - Entrance Test 2**
25 January 2026 **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 Find the largest number, which divides 245 and 1029, leaving remainder 5 in each case.

Q2 If $a = 2,\ b = 3$ and $c = 6$, then find the value of $\dfrac{7^a a^c b^a}{2^b c^a}$

Q3 In a class the ratio of number of boys to number of girls is 5 : 8. If there are 104 girls in the class, what is the number of boys?

Q4 If $3^{3.5} \times 21^2 \times 42^{2.5} \div \left(2^{2.5} \times 7^{3.5}\right) = 7 \times 3^x$, then find x.

Q5 N is the smallest natural number, which on adding 2 is exactly divisible by 21 and 30. Find $\dfrac{N}{4}$.

Q6 A number p increased by $p\%$ of 99 equals to 99 increased by 99% of p. Find p.

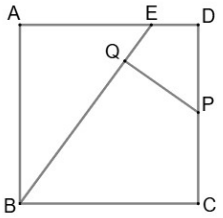
Q7 How many 4 digit even numbers are formed using 2, 3, 5, 9, such that every digit is used only once in each number?

Q8 $\dfrac{2}{a+b} - \dfrac{2}{a-b} + \dfrac{4a}{a^2-b^2} = x$. Find $x(a+b)$

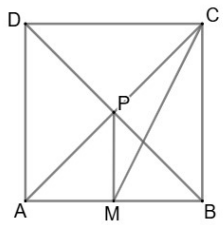
Q9 Two circles S_1 and S_2 have areas in the ratio 2 : 3. Area of S_2 is 30% of the area of a rectangle with sides 10 m and 8 m . What % of the area of rectangle is the area of S_1 ?

Q10 Find the product of $3\dfrac{1}{7} \times 1\dfrac{5}{6} \times 1\dfrac{2}{5} \times 1\dfrac{1}{11} \times 2\dfrac{1}{2}$

Q11 Given a square $ABCD$, with side 8 cm. Point E is on AD such that $AE = 6$ cm. Point P is midpoint of DC. $PQ \perp BE$. Find PQ .



Q12 $\square ABCD$ is a square.
Diagonals AC and BD bisect each other at P.
$PM \perp AB, BC = 10$. Find $\dfrac{MC}{\sqrt{5}}$.



Q13 A takes 6 days less than B to complete a work. If both A and B can finish the work together in 4 days, find the time taken by B to complete the work alone.

Q14 Simplify $\dfrac{16 \times 2^{n+2} - 4 \times 2^{n+1}}{16 \times 2^{n+1} - 4 \times 2^n}$

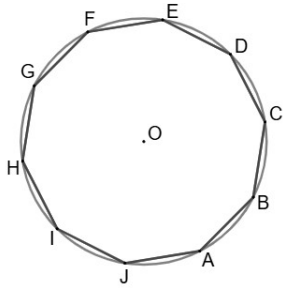
Q15 Find the value of $\left(\dfrac{1}{2}\sqrt{486} - \sqrt{\dfrac{27}{2}}\right) 2\sqrt{6} + \sqrt{196}$

Q16 Rs. 49 was divided among 150 children. Each girl got 50 paise and each boy got 25 paise. How many girls were there?

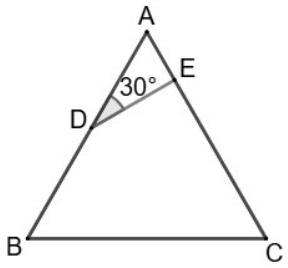
Q17 The average of marks of 40 students in a class is 76 . Due to a technical error, the marks of 2 students were recorded as 45 instead of 60 and marks of other 2 students were recorded as 65 instead of 70 . If the corrections are considered, what will be the new average of the class?

Q18 A motorboat, whose speed in still water is 9 km/hr, goes 15 km downstream and comes back to the same spot in 3 hrs and 45 minutes. Find the speed of the stream.

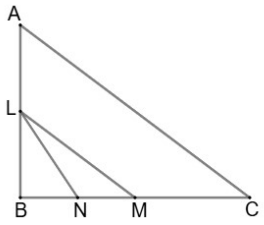
Q19 $ABCDEFGHIJ$ is a regular decagon. Find $m\angle OJD$.



Q20 $\triangle ABC$ is an equilateral triangle.
If $m\angle ADE = 30°, BC = 10, AE = 2$, find DC^2.



Q21 In $\triangle ABC, m\angle B = 90°$. L is the mid-point of AB, M is the mid-point of BC, N is the midpoint of MB. $[LMN] = 8$. Find $[ABC]$

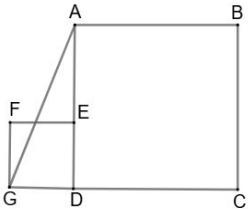


Q22 A fraction $\frac{p}{q}$ becomes $\frac{4}{5}$, if 1 is added to both the numerator and denominator.
If, however, 5 is subtracted from both the numerator and denominator, the fraction becomes $\frac{1}{2}$. Find $(p+q)$.

Q23 If $x = \sqrt{3} + 2\sqrt{2}$ and $y = \sqrt{3} - 2\sqrt{2}$, then find the value of $\frac{x^2 + y^2 - 10xy}{2}$

Q24 The ratio of sugar to water in a solution A is 1:4 and the ratio of salt to water in solution B is $1 : 26$. To make an ORS solution, A and B are mixed in the ratio $2 : 3$. If the ratio of sugar to salt in $m : n$ (where m and n have no common factor), find $m + n$.

Q25 $\square ABCD$ and $\square DEFG$ are squares.
If $GC = 71, AG = 61$, find FE .



Q26 A certain amount is tripled in 20 years at a certain simple interest. In how many years will it be doubled at the same rate of interest?

Q27 Five years after, the father's age will be three times the age of his son then. Five years ago, the father was seven times as old as his son. Find the present age of the father.

Q28 $\left(\sqrt{4x^2+40x+100}\right)^{2a} = (2x+10)^{12}$, find a.

Q29 If the quadratic equations, $8x^2 - 24x + 16 = 0$ and $3x^2 - 21x + 30 = 0$ have one solution in common, find the common solution.

Q30 In the adjoining figure, $ABCDE$ is a regular pentagon. $[APQ] = 5$ and $[SCD] = 8$, find [PQRST].