

PUSHPAGIRI HIGH SCHOOL, HOSAGAVI.

Class: -10th Standard

MID-TERM PRACTICE EXAMINATION 2025-26

TOTAL : 80 MARKS

Sub :- Mathematics

TIME: 3 HOUR 15 MIN

I. Choose The Correct Option

1x8=8

- Any composite number can be expressed as the product of
a) Even number b) Odd number c) Prime number d) Square number
- $\sqrt{2}$ is a/an
a) Rational number b) Irrational number c) Integer d) Natural number
- The degree of a linear polynomial is
a) 0 b) 1 c) 2 d) 3
- If the lines drawn for the pair of line are equations are intersecting then the correct $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ relation among the following is
a) $a_1b_1 = b_2a_2$ b) $a_1/b_1 = b_2/a_2$ c) $a_1/a_2 \neq b_1/b_2$ d) None
- The formula to find the n^{th} term of arithmetic progression is
a) $a_n = a + (n-1)d$ b) $a_n = a + (n+1)d$ c) $a_n = a - (n-1)d$ d) $a_n = n+1$
- Which of the following pair of triangles are always similar
a) Two isosceles triangles b) Two scalene triangles c) Two equilateral triangles d) Two right angles triangles
- The distance between origin and coordinates(x, y)
a) $x^2 + y^2$ b) $\sqrt{x^2 + y^2}$ c) $\sqrt{x^2 - y^2}$ d) $\sqrt{x^2 \times y^2}$
- If the discriminant of quadratic equation $b^2 - 4ac = 0$ then the nature of roots
a) Real and distinct b) Real and equal c) No real roots d) Roots are unequal and irrational

II Answer The Following Questions

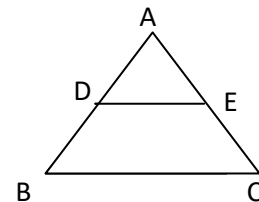
1x8=8

- What is the maximum number of zeroes of a cubic polynomial?
- State the fundamental theorem of arithmetic.
- Write the standard form of a pair of linear equation with variables 'x' and 'y'.
- Express the equation $x(2+x)=3$ in the standard form of a quadratic equation.
- If 4, x, 28 are in arithmetic progression the n find the value of x.
- Find the distance of the point (6,8) from the origin.
- Write the coordinates of the midpoint of the line segment joining the points $A(x_1, y_1)$ and $B(x_2, y_2)$.
- If two triangles are similar, what conditions (rules) must they satisfy?

III Solve The Given Problems

2x8=16

- $7 \times 11 \times 13 + 13$ is a composite number. Justify this statement.
- If the L.C.M of (91, 26) is 182, then find the H.C.F of (91, 26).
- Find the zeroes of the polynomial $P(x) = 6x^2 - 3 - 7x$
- Solve the given pair of linear equations by elimination method.
 $2x + y = 10$ and $x - y = 2$
- Find the roots of the quadratic equation $x^2 + 7x + 12 = 0$ by factorization method.
- Find the 15th term of the arithmetic progression 2, 7, 12, using formula.
- Find the distance between the points P (2, 3) and Q (4, 1) using distance formula.
- In triangle ABC, if $DE \parallel BC$, $AD = 5$ cm, $BD = 7$ cm and $AC = 18$ cm then, find the length of AE.



IV ANSWER THE FOLLOWING QUESTIONS

3x9=27

- Prove that $\sqrt{5}$ is an irrational number.
- Find the H.C.F and L.C.M of the numbers 510 and 92 by the method of prime factorization and verify that $L.C.M \times H.C.F = \text{The product of the numbers}$.
- Find the zeroes of the quadratic polynomial $p(x) = x^2 - 2x - 8$ and verify the relationship between the zeroes and the coefficients.
- After 10 years x will be twice as old as 'y'. Ten years ago, the age of 'x' was six times of 'y'. Find their present ages.
- Find the two numbers whose sum is 27 and the product is 182.
- The sum of first 6 terms in an arithmetic progression is 114. If the sum of first 5 terms of the progression is 80, then find the progression.
- D is a point on the side BC of a triangle ABC such that $\angle ADC = \angle BAC$. Show that $AC^2 = BC \cdot CD$
- Verify whether the points (5, -2) (6, 4) and (7, -2) are the vertices of an isosceles triangle.
- Find the coordinates of the point of trisection of the line segment joining the points (4, -1) and (-2, -3).

V. Answer the following Questions

4x4=16

- Solve the given pair of linear equations by graphical method.
 $2x + y = 6$ and $2x - y = 2$
- A motor boat whose speed is 11 km/h in still water takes 2 hours 45 minutes to go 12 km upstream then to return downstream to the same spot. Find the speed of the stream.
- In an arithmetic progression the sum of the first 'n' term is 210 and the sum of the first (n-1) terms is 171. If the first term of the progression is 3, then find the progression. Also find the 20th term of the progression.
- State and prove Basic Proportionality theorem.

VI. Solve the given

5x1=5

- Write the quadratic polynomial whose sum and product of the zeroes are -6 and 8 respectively. Find the zeroes of this polynomial. Verify the relationship between the zeroes and the coefficients.