
MATHEMATICS MOCK TEST

Class: IX | Set: 10

Time: 1 Hour 30 Minutes | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____

ROLL NO: _____

SECTION A

(1 Mark Each)

1. Simplify the expression: $(\sqrt{5} + \sqrt{2})(\sqrt{5} - \sqrt{2})$.
2. Write the degree of the polynomial $p(x) = 3x^5 + 4x^3 - x + 10$.
3. Find the value of k , if $x = 1, y = 1$ is a solution of the equation $2x + 3y = k$.
4. In which quadrant does the point $(-2, 3)$ lie?
5. Is $\sqrt{225}$ a rational or an irrational number? Give a reason.

SECTION B

(2 Marks Each)

6. Rationalize the denominator: $\frac{1}{\sqrt{7}-2}$.
7. Factorize by splitting the middle term: $x^2 - 11x + 30$.
8. Find the zero of the polynomial $p(x) = 5x - 4$.
9. Express the linear equation $x = 3y$ in the standard form $ax + by + c = 0$ and find the values of a, b , and c .
10. Find the coordinates of the midpoint of the line segment joining points $(2, 4)$ and $(6, 8)$.

SECTION C

(3 Marks Each)

11. If $x = 2 + \sqrt{3}$, find the value of $x + \frac{1}{x}$ and $x^2 + \frac{1}{x^2}$.
12. Factorize $x^3 + 13x^2 + 31x - 45$ completely using the Factor Theorem.
13. Plot the points $A(0, 2), B(4, 2), C(4, 5)$, and $D(0, 5)$ on a graph paper. Name the figure $ABCD$ and find its area.
14. Show that $2.353535\dots$ (or $2.\overline{35}$) can be expressed in the form p/q , where p and q are integers and $q \neq 0$.

SECTION D**(4 Marks Each)**

15. If $x + y + z = 1$, $xy + yz + zx = -1$, and $xyz = -1$, find the value of $x^3 + y^3 + z^3$.
16. Draw the graph of the linear equation $x - 2y = 4$. From the graph, find the coordinates of the points where the line cuts the x-axis and the y-axis.

VIVA VOCE**(5 Marks)**

- **Abscissa:** What is the abscissa of the point $(0, 5)$?
- **Zero Polynomial:** What is the degree of a zero polynomial? Is it defined?
- **Remainder Theorem:** What is the remainder when $p(x)$ is divided by $(x - a)$?
- **Lines:** How many points are required to determine a unique straight line?
- **Identities:** Recite the algebraic identity for $a^3 + b^3$.