MATHEMATICS MOCK TEST

Class: IX | Set: 8

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Find the remainder when $x^3 - ax^2 + 6x - a$ is divided by $(x - a)$.
2. Simplify: $(256)^{0.16} \times (256)^{0.09}$.
3. Write the coordinates of the point which lies on the x-axis and is at a distance of 5 units from the y-axis in the negative direction.
4. Find the degree of the polynomial $p(x) = \sqrt{5}x^2 - 3x + 2$.
5. Is every natural number a whole number? Give a reason.

SECTION B

(2 Marks Each)

6. If $(x + 1)$ is a factor of $x^2 + 3ax + 2a$, find the value of a.
7. Rationalize the denominator: $\frac{4}{\sqrt{7}+\sqrt{3}}$.
8. If $x = 2$ and $y = 1$ is a solution of $2x + 3y = k$, find the value of k. Then find another solution for the equation.
9. Find the value of $(104) \times (96)$ using a suitable algebraic identity.
10. In which quadrants do the points $A(3, -4)$ and $B(-2, 3)$ lie?

SECTION C

(3 Marks Each)

11. Simplify: $\left(\frac{x^l}{x^m}\right)^{l+m} \times \left(\frac{x^m}{x^n}\right)^{m+n} \times \left(\frac{x^n}{x^l}\right)^{n+l}$.
12. Factorize $x^3 - 6x^2 + 11x - 6$ using the Factor Theorem.
13. Three vertices of a square are $A(0, 0), B(3, 0)$, and $C(3, 3)$. Plot these points on a graph and find the coordinates of the fourth vertex D.
14. Solve the equation $3x - 2 = 2x + 3$ and represent the solution on the Cartesian plane.

SECTION D

(4 Marks Each)

15. Simplify by rationalizing the denominators:

$$\frac{1}{3-\sqrt{8}}-\frac{1}{\sqrt{8}-\sqrt{7}}+\frac{1}{\sqrt{7}-\sqrt{6}}-\frac{1}{\sqrt{6}-\sqrt{5}}+\frac{1}{\sqrt{5}-2}$$

16. Draw the graph of the linear equation $2x + y = 6$. From the graph, find the value of y when $x = 2$ and the value of x when $y = 0$.

VIVA VOCE

(5 Marks)

- **Number Systems:** Is π a rational or irrational number? Why?
- **Polynomials:** What is the degree of a zero polynomial?
- **Coordinate Geometry:** What is the name of the horizontal and vertical axes in a Cartesian plane?
- **Linear Equations:** How many solutions exist for the equation $x + y = 5$?
- **Identities:** Recite the expansion for $(a - b)^3$.