MATHEMATICS MOCK TEST

Class: IX | Set: 3

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

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. Find the value of $(625)^{0.16} \times (625)^{0.09}$.
2. Determine whether $(x - 1)$ is a factor of $x^{10} - 1$.
3. Write the coordinates of a point whose ordinate is -5 and which lies on the y-axis.
4. Express $2x = 5$ in the form $ax + by + c = 0$.
5. Give an example of a binomial of degree 35.

SECTION B

(2 Marks Each)

6. Simplify: $(\sqrt{3} + \sqrt{7})^2$.
7. If $p(x) = x + 3$, then find the value of $p(x) + p(-x)$.
8. Find the value of k if $x = 2, y = 1$ is a solution of the equation $2x + 3y = k$.
9. In which quadrant or on which axis do the points $(-2, 4), (3, -1), (-1, 0)$, and $(1, 2)$ lie?
10. Factorize: $x^2 + \frac{1}{x^2} + 2 - 2x - \frac{2}{x}$.

SECTION C

(3 Marks Each)

11. Rationalize the denominator: $\frac{1}{7+3\sqrt{2}}$.
12. If $x + y + z = 0$, prove that $x^3 + y^3 + z^3 = 3xyz$.
13. Plot the points $A(4, 4)$ and $B(-4, 4)$. Join the origin O to A and B. What is the name of the figure OAB so formed? Also, find its area.
14. Find the value of a if $(x - a)$ is a factor of $x^3 - ax^2 + 2x + a - 1$.

SECTION D

(4 Marks Each)

15. If $x = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, find the value of $x^2 + \frac{1}{x^2}$.
16. Draw the graph of the equation $2x + 3y = 12$. From the graph, find the points where it intersects the axes.

VIVA VOCE **(5 Marks)**

- **Polynomials:** What is the difference between a zero polynomial and a constant polynomial?
- **Numbers:** How many rational numbers exist between any two rational numbers?
- **Quadrants:** Sign of coordinates of a point in the fourth quadrant?
- **Linear Equations:** General form of a linear equation in two variables?
- **Identities:** State the algebraic identity for $(x + a)(x + b)$.