MATHEMATICS MOCK TEST

Class: IX | Set: 2

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: $\sqrt{5} \times \sqrt{10}$.
2. Find the value of x for which the polynomial $p(x) = 2x + 5$ becomes zero.
3. Write the coordinates of a point which lies on the y-axis at a distance of 4 units from the x-axis in the positive direction.
4. The linear equation $x = 2$ is parallel to which axis?
5. Is every rational number also an integer? Give a brief reason for your answer.

SECTION B

(2 Marks Each)

6. Rationalize the denominator of $\frac{5}{\sqrt{3}-\sqrt{5}}$.
7. Factorize the polynomial: $x^3 - 2x^2 - x + 2$.
8. If $x = 3$ and $y = 2$ is a solution of the equation $kx + 3y = 10$, find the value of k.
9. Plot the points $A(-2, 4)$ and $B(3, -1)$ in the Cartesian plane. In which quadrants do they lie?
10. Expand $(3a + 4b)^3$ using a suitable algebraic identity.

SECTION C

(3 Marks Each)

11. Show that $1.272727...$ (or $1.\overline{27}$) can be expressed in the form p/q, where p and q are integers and $q \neq 0$.
12. If $a + b + c = 9$ and $a^2 + b^2 + c^2 = 35$, calculate the value of $ab + bc + ca$.
13. Find the area of the triangle formed by joining the points $(0, 0), (4, 0),$ and $(0, 3)$ on a coordinate graph.
14. Solve the equation $2x + 1 = x - 3$ and represent the solution on the number line.

SECTION D

(4 Marks Each)

15. Factorize the cubic polynomial $x^3+13x^2+32x+20$ completely using the Factor Theorem.

16. Draw the graph of the linear equation $x + y = 7$. At what points does the graph cut the x-axis and the y-axis?

VIVA VOCE

(5 Marks)

- **Irrational Numbers:** Give an example of two irrational numbers whose sum is a rational number.
- **Polynomials:** What is the degree of a non-zero constant polynomial?
- **Equations:** How many solutions does a linear equation in two variables have?
- **Coordinates:** What are the signs of coordinates of a point lying in the third quadrant?
- **Identities:** State the algebraic identity for $a^3 - b^3$.