MATHEMATICS MOCK TEST

Class: IX | Set: 9

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: $(1/2)^{-5}$.
2. If $(x+1)$ is a factor of the polynomial $x^3 + a$, find the value of a.
3. What is the ordinate of any point lying on the x-axis?
4. Express the linear equation $y = \frac{3}{2}x$ in the standard form $ax + by + c = 0$.
5. What type of decimal expansion does the rational number $1/7$ have?

SECTION B

(2 Marks Each)

6. Factorize the expression: $9x^2 - 25y^2$.
7. Find the value of k if the point $(2, 1)$ lies on the graph of the equation $3x + 2y = k$.
8. Rationalize the denominator: $\frac{1}{\sqrt{5}-2}$.
9. A point M is the midpoint of the line segment joining $A(0, 0)$ and $B(6, 0)$. Write the coordinates of M.
10. Evaluate $(998)^2$ using a suitable algebraic identity.

SECTION C

(3 Marks Each)

11. If $a = 2 + \sqrt{3}$, find the value of $a - \frac{1}{a}$.
12. Factorize $x^3 + x^2 - 4x - 4$ completely using the grouping method.
13. Verify that $x = 2, y = 1$ is a solution of the linear equation $2x + 3y = 7$. Find one more solution for the same equation.
14. Find the area of the triangle whose vertices are $A(0, 0), B(5, 0)$, and $C(0, 4)$ on a coordinate plane.

SECTION D

(4 Marks Each)

15. If $x + y + z = 6$ and $x^2 + y^2 + z^2 = 20$, find the value of $xy + yz + zx$. Also, find the value of $x^3 + y^3 + z^3 - 3xyz$.

16. Draw the graphs of the linear equations $x - y = 2$ and $x + y = 4$ on the same graph paper. Find the coordinates of the point where the two lines intersect.

VIVA VOCE

(5 Marks)

- **Number Systems:** Can we represent $\sqrt{2}$ on a number line? Briefly explain the method.
- **Polynomials:** What is the difference between a linear polynomial and a quadratic polynomial?
- **Coordinate Geometry:** In which quadrant do points with signs $(+, -)$ lie?
- **Linear Equations:** How many solutions does the equation $x = 5$ have in two variables?
- **Identities:** Recite the expansion for $(x + y + z)^2$.