# MATHEMATICS MOCK TEST
## Class: IX | Set: 7

**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 $(16)^{3/4}$.

2. If $p(x) = x^2 - 2\sqrt{2}x + 1$, find the value of $p(2\sqrt{2})$.

3. Write the coordinates of a point whose distance from the x-axis is 3 units and from the y-axis is 4 units, and which lies in the second quadrant.

4. Write the degree of the polynomial $f(x) = 5x^3 + 4x^2 + 7x$.

5. Is zero a rational number? Can you write it in the form $p/q$?

## SECTION B                                                    (2 Marks Each)

6. Simplify the expression: $(2\sqrt{2} + 5\sqrt{3})(3\sqrt{2} - 2\sqrt{3})$.

7. Check whether $7 + 3x$ is a factor of $3x^3 + 7x$ using the Remainder Theorem.

8. Find the value of $k$ if $x = 2, y = 1$ is a solution of the equation $kx + 3y = k + 2$.

9. Factorize by splitting the middle term: $12x^2 - 7x + 1$.

10. Evaluate $(99)^3$ using a suitable algebraic identity.

## SECTION C                                                    (3 Marks Each)

11. If $x = 3 - 2\sqrt{2}$, find the value of $x + \frac{1}{x}$.

12. Factorize the polynomial $2x^3 - 3x^2 - 17x + 30$ completely.

13. Plot the points $A(2, 0), B(2, 2), C(0, 2)$, and $D(0, 0)$ on a Cartesian plane. Join these points in order and identify the figure so formed.

14. If $x^2 + \frac{1}{x^2} = 7$, find the value of $x^3 + \frac{1}{x^3}$ (assuming $x > 0$).

## SECTION D                                                      (4 Marks Each)

**15.** Determine the values of rational numbers $a$ and $b$ if:

$$\frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}} = a + b\sqrt{15}$$

**16.** The linear equation that converts Fahrenheit $(F)$ to Celsius $(C)$ is given by $F = \left(\frac{9}{5}\right) C + 32$.

    (a) If the temperature is $30°C$, what is the temperature in Fahrenheit?

    (b) If the temperature is $95°F$, what is the temperature in Celsius?

    (c) Is there a temperature which is numerically the same in both Fahrenheit and Celsius?

## VIVA VOCE                                                           (5 Marks)

- **Constants:** What is the degree of a non-zero constant polynomial?

- **Origins:** What are the coordinates of the origin?

- **Identities:** Recite the algebraic identity for $x^2 - y^2$.

- **Solutions:** Can a linear equation in two variables have no solution at all?

- **Lines:** How many points lie on a single straight line?