Class 10 Mathematics · Chapter 4: Quadratic Equations

Worksheet · 20 marks · about 40 minutes · based on NCERT

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1. Which of the following is NOT a quadratic equation? [1]

(a) $(x + 1)^3 = x^3 + 2$
(b) $(x - 2)^2 + 1 = 2x - 3$
(c) $x(2x + 3) = x^2 + 1$
(d) $(x + 1)^3 = 2x(x^2 + 1)$

2. The solution of $\frac{x^2}{x - 3} = \frac{9}{x - 3}$ is [1]

(a) $x = 3$ only
(b) $x = -3$ only
(c) $x = 3$ and $x = -3$
(d) no value of x

3. The roots of $(3x - 2)(x + 4) = 0$ are [1]

(a) 2 and −4
(b) $-\frac{2}{3}$ and 4
(c) $\frac{3}{2}$ and −4
(d) $\frac{2}{3}$ and −4

4. When $(x - 1)^3 = x^3 + 2$ is simplified, it becomes [1]

(a) $x^2 + x + 1 = 0$
(b) $x^2 - x + 1 = 0$
(c) $x^2 - x - 1 = 0$
(d) $x^3 - 3x^2 + 3x - 3 = 0$

5. If $x = 2$ is a root of $x^2 + kx - 10 = 0$, then k is [1]

(a) 3
(b) −3
(c) 7
(d) 2

6. Check whether $(2x + 1)(x - 3) = (x + 4)(x - 2)$ is a quadratic equation. [2]

7. Find the roots of $2x^2 - 2\sqrt{2}x + 1 = 0$ by factorisation. [2]

8. Find the discriminant of $2x^2 - 4x + 3 = 0$ and hence state the nature of its roots. [2]

9. Solve $\frac{1}{x - 1} + \frac{1}{x + 3} = \frac{2}{3}$, $x \neq 1, -3$. [3]

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10. Find two numbers whose sum is 15 and whose product is 56. [3]

11. If α and β are the roots of $2x^2 - 6x + 3 = 0$, find $\alpha^2 + \beta^2$. [3]

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