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NCERT Mathematics Class 10 Exemplar Ch 4 Quadratic Equations Part 1 (For CBSE, ICSE, IAS, NET, NRA 2022)

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EXERCISE 4.1

1. Which of the following is a quadratic equation?

(A) $x^2 + 2x + 1 = (4-x)^2 + 3$ (B) $-2x^2 = (5-x)\left(2x - \dfrac{2}{5}\right)$

(C) $(k+1)x^2 + \dfrac{3}{2}x = 7$, where $k = -1$ (D) $x^3 - x^2 = (x-1)^3$

Answer: D

2. Which of the following is not a quadratic equation?

(A) $2(x-1)^2 = 4x^2 - 2x + 1$ (B) $2x - x^2 = x^2 + 5$

(C) $\left(-\sqrt{2}x\sqrt{3}\right)^2 = 3x^2 - 5x$ (D) $\left(x^2 + 2x\right)^2 = x^4 + 3 + 4x^2$

Answer: C

3. Which of the following equations has 2 as a root?

(A) $x^2 - 4x + 5 = 0$ (B) $x^2 + 3x - 12 = 0$

(C) $2x^2 - 7x + 6 = 0$ (D) $3x^2 - 6x - 2 = 0$

Answer: C

4. If $\dfrac{1}{2}$ is a root of the equation $x^2 + kx - \dfrac{5}{4} = 0$, then the value of k is

(A) 2 (B) − 2

(C) $\dfrac{1}{4}$ (D) $\dfrac{1}{2}$

Answer: A

5. Which of the following equations has the sum of its roots as 3?

(A) $2x^2 - 3x + 6 = 0$ (B) $-x^2 + 3x - 3 = 0$

(C) $\sqrt{2x}^{-2} \dfrac{3}{\sqrt{2}}x + 1 = 0$ (D) $3x^2 - 3x + 3 = 0$

Answer: B

6. Values of k for which the quadratic equation $2x^2 - kx + k = 0$ has equal roots is

(A) 0 only (B) 4

(C) 8 only (D) 0,8

Answer: D

7. Which constant must be added and subtracted to solve the quadratic equation $9x^2 + \dfrac{3}{4}x - \sqrt{2} = 0$ by the method of completing the square?

(A) $\dfrac{1}{8}$ (B) $\dfrac{1}{64}$

(C) $\dfrac{1}{4}$ (D) $\dfrac{9}{64}$

Answer: B

8. The quadratic equation $2x^2 - \sqrt{5}x + 1 = 0$ has

(A) two distinct real roots (B) two equal real roots

(C) no real roots (D) more than 2 real roots

Answer: C

9. Which of the following equations has two distinct real roots?

(A) $2x^2 - 3\sqrt{2}x + \dfrac{9}{4} = 0$ (B) $x^2 + x - 5 = 0$

(C) $x^2 + 3x + 2\sqrt{2} = 0$

(D) $5x^2 - 3x + 1 = 0$

Answer: B

10. Which of the following equations has no real roots?

(A) $x^2 - 4x + 3\sqrt{2} = 0$ (B) $x^2 + 4x - 3\sqrt{2} = 0$

(C) $x^2 - 4x - 3\sqrt{2} = 0$ (D) $3x^2 + 4\sqrt{3}x + 4 = 0$

Answer: A

11. $\left(x^2 + 1\right)^2 - x^2 = 0$ has

(A) four real roots (B) two real roots

(C) no real roots (D) one real root.

Answer: C

(C) no real roots (D) one real root.

Answer: C