QUADRATIC EQUATION

EXERCISE

INTRODUCTION OF QUADRATIC EQUATION

Q1. If $x = -$ and $x=\frac{1}{5}$ are solutions of the equations $x^2 + kx + \lambda = 0$. Find the value of k and λ.

Q2. Which of the following are quadratic polynomials

(i) $5x^2 - 8x + 12$ (ii) $3 + 4x - 7x^2$

(iii) $8x^2 - 15$ (iv) $8x - 15$

(v) $8x^3 - 3x$ (vi) $x^2 - \sqrt{5}x + 2\sqrt{3}$

(vii) $\sqrt{3}x^2 - 10x - 5\sqrt{3}$ (viii) $\sqrt{7} - \sqrt{5}x - \sqrt{3}x^3$

(ix) $\sqrt{15}x^2 - \sqrt{5}x + 7$

Q3. Find the value of each given polynomial at the given value of its variable :

(i) $5x^2 - 7x + 2$ at $x = 3$

(ii) $x^2 + 15x - 4$ at $x = -1$

(ii) $2y^2 - y + 2$ at $y = -2$

(iv) $3y + 8 - 2y^2$ at $y = -3$

(v) $\sqrt{2}x^2 + 3x + 1$ at $x = \sqrt{2}$

(vi) $x^3 - 3x^2 + 5x + 2$ at $x = -4$

(vii) $5\sqrt{2}x^3 + 2x^2 - \sqrt{2}x + 1$ at $x = 2\sqrt{2}$

Q4. Find the value of constant 'm' if :

(i) $x = -2$ is a zero of quadratic polynomial $4x^2 - 3mx + 5$.

(ii) $y = -5$ is a zero of quadratic polynomial $7 + 4(m + 2)y - y^2$

Q5. Which of the following are quadratic equations:

(i) $x^2 - 9x + 5 = 0$ (ii) $x^2 - \frac{3}{x} = 2$

Q6. Which of the following are quadratic equations:

(i) $x - \frac{3}{x} = 2x^2$ (ii) $15x^2 + 27x - 33 = 0$

Q7. Which of the following are quadratic equations:

(i) $\sqrt{3}x^2 + 8x = 3\sqrt{2}$

(ii) $\frac{7}{8}x^2 - \frac{3}{5}x + \frac{5}{7} = 0$

Q8. Determine whether $x = -\frac{2}{\sqrt{3}}$ and $x = -3\sqrt{3}$ are solutions of given equation or not :

$\sqrt{3}x^2 + 11x + 6\sqrt{3} = 0$

Q9. Show that :

(i) $x = 3$ is a zero of quadratic polynomial $x^2 - 2x - 3$.

(ii) $x = -2$ is a zero of quadratic polynomial $3x^2 + 7x + 2$.

(iii) $x = 4$ is not a zero of quadratic polynomial $2x^2 - 7x - 5$.

Q10. In each of the following, determine whether the given values are solutions (roots) of the equation or not :

(i) $3x^2 - 2x - 1 = 0$; $x = 1$

(ii) $x^2 + 6x + 5 = 0$; $x = -1$, $x = -5$

(iii) $x^2 + \sqrt{2}x - 4 = 0$; $x = \sqrt{2}$, $x = -2\sqrt{2}$

ANSWER

1. $k = 9$ $\lambda = -2$

2. (i), (ii), (iii), (vi), (vii), (ix)

3. (i) 26 (ii) –18 (iii) 12 (iv) –19 (v) $5\sqrt{2} + 1$ (vi) –130 (vii) 173

4. (i) $-\frac{7}{2}$ (ii) $-\frac{29}{10}$

5. (i)

6. (ii)

7. (i), (ii)

8. YES

9.

10. (i) yes (ii) try yourself (iii) try yourself