Multiple Choice Questions (1 mark each)

1. The roots of the equation $4x^2 - 2(a^2 + b^2)x + a^2b^2 = 0$ is

   (a) $\frac{b}{2}, \frac{a}{2}$ (b) $\frac{b^2}{2}, \frac{a^2}{2}$

   (c) b^2, a^2 (d) None of these

2. If $x = k$ be a solution of the quadratic equation $x^2 + 4x + 3 = 0$, then $k = -1$ and

   (a) 2 (b) -3 (c) 3 (d) -2

3. The equation $k^2x^2 + kx + 1 = 0$ has

   (a) one real root (b) two real roots (c) no real roots (d) None of these

4. If the equation $x^2 - bx + 1 = 0$ does not possess real roots, then

   (a) $-3 < b < 3$ (b) $-2 < b < 2$

   (c) $b > 2$ (d) $b < -2$

Short Answer Type (I) Questions (2 marks each)

5. Solve the quadration equation $3\sqrt{5}x^2 + 25x - 10\sqrt{5} = 0$ by factorisation method.

6. If $\frac{x}{x+1} + \frac{x+1}{x} = \frac{34}{15}$, then find the value of x.

7. Solve $8x^2 - 22x - 21 = 0$ by the factorisation method.

Short Answer Type (II) Questions (3 marks each)

8. Find the solution of the equation $\frac{x-3}{x+3} - \frac{x+3}{x-3} = \frac{48}{7}$, $x \neq 3$, $x \neq -3$.

9. Find the roots of the quadratic equation $9x^2 - 9(a+b)x + (2a^2 + 5ab + 2b^2) = 0$.

10. Find the value of k for which the quadratic equation $(3k+1)x^2 + 2(k+1)x + 1 = 0$, has equal roots . Also find these roots.

Long Answer Type Questions (5 marks each)

11. Find the solution of the equation $\frac{2}{x+1} + \frac{3}{2(x-2)} = \frac{23}{5x}$, $x \neq 0, -1, 2$.

12. Find the solution of the equation $\frac{x-1}{2x+1} + \frac{2x+1}{x-1} = \frac{5}{2}$, $x \neq -\frac{1}{2}, 1$ by factorisation method.

Answers

1. (b) 2. (b) 3. (c) 4. (b)

5. $\frac{\sqrt{5}}{3}$ or $-2\sqrt{5}$ 6. $x = \frac{3}{2}$ or $x = \frac{-5}{2}$ 7. $x = \frac{7}{2}$ and $x = \frac{-3}{4}$ 8. $-4, \frac{9}{4}$

9. $\frac{(2a+b)}{3}$ and $\frac{(a+2b)}{3}$ 10. $-1, -1$ or $-\frac{1}{2}, -\frac{1}{2}$ 11. $4, -\frac{23}{11}$

12. -1

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