



A Level Maths

Topic: Solving Quadratic Equations

Instructions

Answer all questions. Show complete working. Solve the quadratic equations using the appropriate method (completing the square, factorising, or quadratic formula).

Practice Questions

1. Solve the following quadratic equations by factorising:

(i) $x^2 + 5x + 6 = 0$

(ii) $2x^2 - 7x + 3 = 0$

(iii) $x^2 - 9 = 0$

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

2. Solve the following quadratic equations by completing the square:

(i) $x^2 + 6x + 5 = 0$

(ii) $x^2 - 8x + 12 = 0$

(iii) $x^2 + 4x - 8 = 0$

(iv) $x^2 - 10x + 25 = 0$

3. Solve the following quadratic equations using the quadratic formula:

(i) $x^2 + 4x + 3 = 0$

(ii) $2x^2 - 3x - 2 = 0$

(iii) $3x^2 - 7x + 2 = 0$

(iv) $5x^2 + 6x - 8 = 0$

4. Solve the equation $x^2 + 6x = 7$ by completing the square.
5. Solve the equation $x^2 - 4x = 5$ by completing the square.
6. Use the quadratic formula to solve the equation $2x^2 + 3x - 5 = 0$.
7. Solve the quadratic equation $x^2 - 6x + 8 = 0$ by factorising.

Multiple-Choice Questions

1. What are the roots of the quadratic equation $x^2 + 7x + 10 = 0$?
 - A. $x = -5$ and $x = -2$
 - B. $x = 5$ and $x = 2$
 - C. $x = -1$ and $x = -10$
 - D. $x = 1$ and $x = -10$
2. What is the solution to the quadratic equation $x^2 - 4x - 5 = 0$?
 - A. $x = -1$ and $x = 5$
 - B. $x = 1$ and $x = -5$
 - C. $x = -5$ and $x = -1$
 - D. $x = 5$ and $x = 1$
3. What is the value of x for the equation $3x^2 + 2x - 1 = 0$ using the quadratic formula?
 - A. $x = \frac{-2 \pm \sqrt{4+12}}{6}$
 - B. $x = \frac{-2 \pm \sqrt{16}}{6}$
 - C. $x = \frac{2 \pm \sqrt{16}}{3}$
 - D. $x = \frac{-2 \pm \sqrt{2}}{6}$
4. The equation $x^2 - 8x + 15 = 0$ can be solved by:
 - A. Completing the square
 - B. Using the quadratic formula
 - C. Factorising
 - D. All of the above
5. The equation $2x^2 + 7x - 3 = 0$ has roots:
 - A. $x = -3$ and $x = 2$
 - B. $x = -\frac{7}{2}$ and $x = \frac{3}{2}$
 - C. $x = 3$ and $x = -2$
 - D. $x = 1$ and $x = -3$