

Solving Harder Quadratics by Factorising Exam Practice



Q1. a) Factorise: $2x^2 + 19x + 24$ (2 marks)

b) Hence solve the equation: $2x^2 + 19x + 24 = 0$ (2 marks)

Q2. a) Factorise: $3x^2 + 14x - 24$ (2 marks)

b) Hence solve the equation: $3x^2 + 14x - 24 = 0$ (2

marks)

Q3. Factorise the following quadratics:

a) $2a^2 - a - 36$ (2 marks)

b) $2b^2 - 50$ (2 marks)

marks)

Q4. a) Factorise: $4c^2 + 12c - 27$ (2 marks)

b) Hence solve the equation: $4c^2 + 12c - 27 = 0$ (2 marks)

Q5. Solve the following equation:

$5x^2 + 68x = 28$ (3 marks)

Q6. Solve the following equation:

$3y^2 - 24y = -48$ (3 marks)

Q7. Solve the following equation:

$8a^2 = 28a + 16$ (3 marks)

Q8. a) Show that the equation $16 + \frac{12}{x} = 3x$ can be written in the form:

$$3x^2 - 16x - 12 = 0$$



(2 marks)

b) Hence solve the equation: $16 + \frac{12}{x} = 3x$

(2 marks)

Applied Mixed Practice Problems

Q9. The height h of a ball above the ground in metres, t seconds after it is thrown, is given by the equation, $h = -4t^2 + 22t$. Find the length of time the ball is 24 metres or more above the ground.

(5 marks)

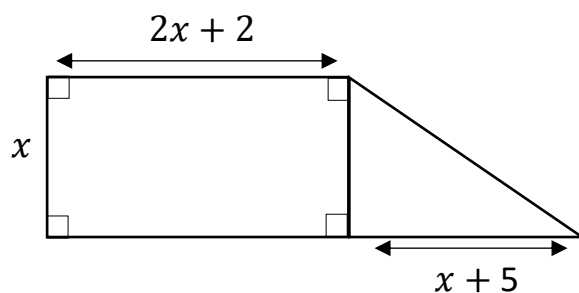
Q10. A suspension bridge consisting of 2 vertical towers connected by steel connectors. Each steel connector can be modelled by the quadratic $h = 2d^2 - 13d + 30$ where h is the height of the connector above the driveway and d is the distance from the left vertical tower.



Find the distance from the left tower when the steel connectors are 12m above the driveway.

(4 marks)

Q11. The area of the entire shape below is 40 cm^2 .



a) Show that $5x^2 + 9x - 80 = 0$

(4 marks)

b) Find the perimeter of the triangle.

(4 marks)

Q12. Factorise the following expressions fully:

a) $4x^2 + 2xy - 12y^2$

(2 marks)

b) $x^4 - 81$



(2 marks)