

Solving Harder Quadratics Using Factorisation Exam Practice



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

Answer: _____
(2 marks)

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

Answer: _____
(2 marks)

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

Answer: _____
(2 marks)

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

Answer: _____
(2 marks)



Q3. Factorise the following quadratics:

a) $2a^2 - a - 36$

Answer: _____
(2 marks)

b) $2b^2 - 50$

Answer: _____
(2 marks)

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

Answer: _____
(2 marks)

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

Answer: _____
(2 marks)



Q5. Solve the following equation:

$$5x^2 + 68x = 28$$

Answer: _____
(3 marks)

Q6. Solve the following equation:

$$3y^2 - 24y = -48$$

Answer: _____
(3 marks)



Q7. Solve the following equation:

$$8a^2 = 28a + 16$$

Answer: _____
(3 marks)

Q8. a) Show that the equation $16 + \frac{12}{x} = 3x$ can be written in the form:
 $3x^2 - 16x - 12 = 0$

Answer: _____
(3 marks)

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

Answer: _____
(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.

Answer: _____

(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.

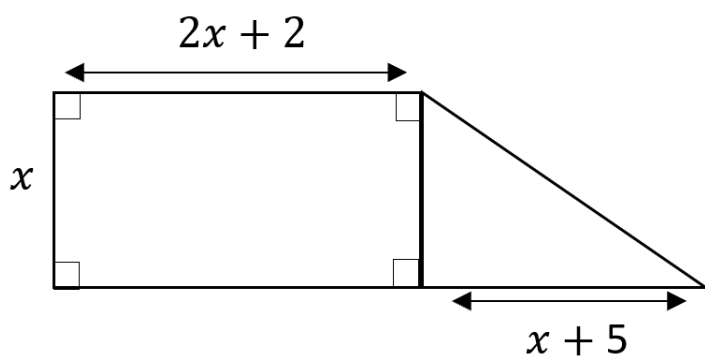


Find the distance from the left tower when the steel connectors are 12m above the driveway.

Answer: _____
(5 marks)



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



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

Answer: _____
(5 marks)

b) Find the perimeter of the triangle.

Answer: _____
(4 marks)



Q12. Factorise the following expressions fully:

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

Answer: _____
(2 marks)

b) $x^4 - 81$

Answer: _____
(2 marks)

