Solving Quadratics by Factorising

GCSE Maths · Foundation tier · 16 questions · 47 marks

Name _____ Date _____ Score _____ / 47

Start at Level 1 and climb. Stuck? The worked answers show every step.

Level 1 · Warm-up | Level 2 · Build | Level 3 · Exam-style | Level 4 · Challenge (Foundation)

Level 1 · Warm-up

12 marks

Equations that are already $= 0$ and ready to factorise.

1 Solve $(x - 3)(x + 5) = 0$. [2 marks]

Answer _____

2 Solve $x^2 + 7x + 12 = 0$. [3 marks]

Answer _____

3 Solve $x^2 - 6x + 8 = 0$. [3 marks]

Answer _____

4 Solve $x^2 - 5x = 0$. [2 marks]

Answer _____

5 Solve $x^2 - 36 = 0$. [2 marks]

Answer _____

Level 2 · Build 10 marks
Harder signs, repeated roots, and a first look at $ax^2 + bx + c = 0$ and rearranging.

6 Solve $x^2 + 2x - 24 = 0$. [3 marks]

Answer _____

7 Solve $x^2 - 10x + 25 = 0$. [2 marks]

Answer _____

8 Solve $x^2 + 9x = 0$. [2 marks]

Answer _____

9 Solve $x^2 - 3x - 40 = 0$. [3 marks]

Answer _____

Level 3 · Exam-style 14 marks
Show that, hence and graph questions in real GCSE style.

10 (a) Factorise $x^2 - 2x - 15$. [2 marks]

Answer _____

(b) Hence solve $x^2 - 2x - 15 = 0$. [1 mark]

Answer _____

11 (a) A rectangle is x cm wide and $(x + 5)$ cm long. Its area is 36 cm^2. Show that $x^2 + 5x - 36 = 0$. [2 marks]

Answer _____

(b) Solve $x^2 + 5x - 36 = 0$. [3 marks]

Answer _____

(c) Write down the width of the rectangle. [1 mark]

Answer _____

12 Ella solves $x^2 - 7x + 10 = 0$. She writes $(x - 2)(x - 5) = 0$, so $x = -2$ or $x = -5$. Explain Ella's mistake, and write down the correct solutions. [2 marks]

Answer _____

13 The graph of $y = x^2 - x - 12$ crosses the x-axis at two points. Use algebra to find the coordinates of these points. [3 marks]

Answer _____

Level 4 · Challenge (Foundation) 11 marks
Grade 4–5 problem solving: forming and solving quadratic equations from words.

14 (a) I think of a number, x. I square it, then subtract 3 times the number. The answer is 28. Show that $x^2 - 3x - 28 = 0$. [1 mark]

Answer _____

(b) Find the two possible values of the number. [3 marks]

Answer _____

15 (a) The product of two consecutive positive whole numbers is 132. The smaller number is x. Show that $x^2 + x - 132 = 0$. [1 mark]

Answer _____

(b) Find the two numbers. [3 marks]

Answer _____

16 A rectangle has length $(x + 3)$ cm and width $(x - 3)$ cm. Its area is 40 cm^2. [3 marks]
Work out the value of x.

Answer _____