

Oxford Revise | Edexcel GCSE Maths Foundation | Answers

Chapter 10 Solving quadratic equations by factorising

Question	Answer	Extra information	Marks
10.1 (a)	$x^2 + 3x + 6x + 18 = x^2 + 9x + 18$	Correct expansion, without simplifying	1
		Fully correct and simplified expansion	1
10.1 (b)	$b^2 - 3b + 4b - 12 = b^2 + b - 12$	Correct expansion, without simplifying	1
		Fully correct and simplified expansion	1
10.1 (c)	$(t-5)(t-5) = t^2 - 5t - 5t + 25$ $= t^2 - 10t + 25$	Correct expansion, without simplifying	1
		Fully correct and simplified expansion	1
10.2 (a)	$xy + 7x + y + 7$	Correct expansion	1
10.2 (b)	$(x-y)(x-y) = x^2 - xy - xy + y^2$ $= x^2 - 2xy + y^2$	Correct expansion, without simplifying	1
		Fully correct and simplified expansion	1
10.2 (c)	$6p + 27 - 4p^2 - 18p = -4p^2 - 12p + 27$	Correct expansion, without simplifying	1
		Fully correct and simplified expansion	1
10.3	Area = $\frac{1}{2} \times (2x+2) \times (2x-1)$ $= (x+1)(2x-1)$ $= 2x^2 + x - 1$	Writing one-half times base times height and putting the expressions for the base and height into the formula	1
		Expanding brackets correctly	1
		Correct answer	1
10.4 (a)	$(x+2)(x+3)$	Two sets of brackets, including two numbers that multiply to give the constant term	1
		Correct answer	1

Question	Answer	Extra information	Marks
10.4 (b)	$(y-2)(y-1)$	Two sets of brackets, including two numbers that multiply to give the constant term Correct answer	1 1
10.4 (c)	$(p-12)(p+3)$	Two sets of brackets, including two numbers that multiply to give the constant term Correct answer	1 1
10.5	The quadratic expression factorises in only one way: $(x+9)(x-3)$ The sides are $(x+9)$ and $(x-3)$	Factorising correctly Correct answer	1 1
10.6 (a)	$y(y+16)$		1
10.6 (b)	$(x-4)(x+4)$		1
10.6 (c)	$(a+8)(a+8) = (a+8)^2$	Brackets with two numbers to give 64 Correct answer	1 1
10.7	$x^2 = 49$ $x = \pm 7$	Both answers needed for full marks. Positive answer alone gets 1 mark	1 1
10.8 (a)	$(x+4)(x+5) = 0$ $x = -4, -5$	Factorising Both correct answers	1 1
10.8 (b)	$(x-8)(x+1) = 0$ $x = 8, -1$	Factorising Both correct answers	1 1

Question	Answer	Extra information	Marks
10.8 (c)	$x(x+5) = 0$ $x = 0, -5$	Factorising Both correct answers	1 1
10.8 (d)	$(x+1)(x-1) = 0$ $x = -1, 1$	Factorising Both correct answers	1 1
10.8 (e)	$2x(x+3) = 0$ $x = 0, -3$	Factorising Both correct answers	1 1
10.9 (a)	Area is 12, which is equal to the length times height: $(x-4)(x-5) = 12$ $x^2 - 9x + 20 - 12 = 0$ $x^2 - 9x + 8 = 0$	$(x-4)(x-5) = 12$ Expanding and trying to rearrange to make equal to 0 Correct working to reach the final answer	1 1 1
10.9 (b)	$(x-8)(x-1) = 0$ $x = 8, 1$ When $x = 1$, both $x-4$ and $x-5$ result in negative side lengths, so discard this. When $x = 8$, the side lengths are 4 cm and 3 cm. The shortest side is 3 cm.	Factorising Solutions 8 and 1 Correct answer	1 1 1

Question	Answer	Extra information	Marks
10.10	$(2x + 5)(2x + 5) = 30$	Construct the correct equation	1
	$4x^2 + 20x + 25 = 30$	Expand brackets	1
	$4x^2 + 20x = 5$	Correct working	1
10.11	If $(x + 4) = 0$, then $x = -4$, not $x = 4$		1
10.12 (a)	$60 \times 1.05 = 63$	Correct multiplier	1
		Correct answer	1
10.12 (b)	$0.5 \times 0.2 = 0.1$	Correct multiplier	1
		Correct answer	1
10.13 (a)	$0.865 \leq x < 0.875$	0.865 or 0.875 at the correct end of an error interval	1
		Fully correct	1
10.13 (b)	$7 \leq y < 8$	7 or 8 at the correct end of an error interval	1
		Fully correct	1