
GCSE Mathematics

Quadratic Equations

Mark Scheme - Grades 5-7

M = method mark, A = accuracy mark (dependent on the preceding M mark), B = independent mark.

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Edexcel-style questions

Q1 Grade 5 Edexcel style

Total: 2

Part	Mark scheme	Marks
(a)	$x = \pm\sqrt{25}$	M1
(a)	$x = 5$ or $x = -5$	A1

Q2 Grade 5 Edexcel style

Total: 2

Part	Mark scheme	Marks
(a)	$x(x + 5) = 0$	M1
(a)	$x = 0$ or $x = -5$	A1

Q3 Grade 5 Edexcel style

Total: 3

Part	Mark scheme	Marks
(a)	two numbers that multiply to 6 and add to -5: -2 and -3	M1
(a)	$(x - 2)(x - 3) = 0$	M1
(a)	$x = 2$ or $x = 3$	A1

Q4 Grade 6 Edexcel style

Total: 3

Part	Mark scheme	Marks
(a)	two numbers that multiply to -15 and add to 2: 5 and -3	M1
(a)	$(x + 5)(x - 3) = 0$	M1
(a)	$x = -5$ or $x = 3$	A1

Q5 Grade 7 Edexcel style

Total: 4

Part	Mark scheme	Marks
(a)	$ac = 6$; two numbers multiplying to 6 and adding to 7: 6 and 1	M1
(a)	$2x^2 + 6x + x + 3 = 2x(x + 3) + 1(x + 3)$	M1
(a)	$(2x + 1)(x + 3) = 0$	M1
(a)	$x = -\frac{1}{2}$ or $x = -3$	A1

AQA-style questions

Q6 Grade 5 AQA style**Total: 2**

Part	Mark scheme	Marks
(a)	$x = \pm\sqrt{49}$	M1
(a)	$x = 7$ or $x = -7$	A1

Q7 Grade 5 AQA style**Total: 2**

Part	Mark scheme	Marks
(a)	$x(x - 4) = 0$	M1
(a)	$x = 0$ or $x = 4$	A1

Q8 Grade 5 AQA style**Total: 3**

Part	Mark scheme	Marks
(a)	two numbers that multiply to 12 and add to -7: -3 and -4	M1
(a)	$(x - 3)(x - 4) = 0$	M1
(a)	$x = 3$ or $x = 4$	A1

Q9 Grade 6 AQA style**Total: 3**

Part	Mark scheme	Marks
(a)	two numbers that multiply to -10 and add to -3: -5 and 2	M1
(a)	$(x - 5)(x + 2) = 0$	M1
(a)	$x = 5$ or $x = -2$	A1

Q10 Grade 7 AQA style**Total: 4**

Part	Mark scheme	Marks
(a)	$ac = 18$; two numbers multiplying to 18 and adding to 11: 9 and 2	M1
(a)	$3x^2 + 9x + 2x + 6 = 3x(x + 3) + 2(x + 3)$	M1
(a)	$(3x + 2)(x + 3) = 0$	M1
(a)	$x = -\frac{2}{3}$ or $x = -3$	A1

OCR-style questions

Q11 Grade 5 OCR style**Total: 2**

Part	Mark scheme	Marks
(a)	$x = \pm\sqrt{81}$	M1
(a)	$x = 9$ or $x = -9$	A1

Q12 Grade 5 OCR style**Total: 2**

Part	Mark scheme	Marks
(a)	$x(x + 7) = 0$	M1
(a)	$x = 0$ or $x = -7$	A1

Q13 Grade 5 OCR style**Total: 3**

Part	Mark scheme	Marks
(a)	two numbers that multiply to 20 and add to -9: -4 and -5	M1
(a)	$(x - 4)(x - 5) = 0$	M1
(a)	$x = 4$ or $x = 5$	A1

Q14 Grade 6 OCR style**Total: 3**

Part	Mark scheme	Marks
(a)	two numbers that multiply to -21 and add to 4: 7 and -3	M1
(a)	$(x + 7)(x - 3) = 0$	M1
(a)	$x = -7$ or $x = 3$	A1

Q15 Grade 7 OCR style**Total: 4**

Part	Mark scheme	Marks
(a)	$ac = -6$; two numbers multiplying to -6 and adding to 5: 6 and -1	M1
(a)	$2x^2 + 6x - x - 3 = 2x(x + 3) - 1(x + 3)$	M1
(a)	$(2x - 1)(x + 3) = 0$	M1
(a)	$x = \frac{1}{2}$ or $x = -3$	A1

Teachably-style questions

Q16 Grade 5 Teachably style

Total: 2

Part	Mark scheme	Marks
(a)	$x = \pm\sqrt{36}$	M1
(a)	$x = 6$ or $x = -6$	A1

Q17 Grade 5 Teachably style

Total: 2

Part	Mark scheme	Marks
(a)	$x(x - 6) = 0$	M1
(a)	$x = 0$ or $x = 6$	A1

Q18 Grade 5 Teachably style

Total: 3

Part	Mark scheme	Marks
(a)	two numbers that multiply to 15 and add to -8: -3 and -5	M1
(a)	$(x - 3)(x - 5) = 0$	M1
(a)	$x = 3$ or $x = 5$	A1

Q19 Grade 6 Teachably style

Total: 3

Part	Mark scheme	Marks
(a)	two numbers that multiply to -12 and add to -1: -4 and 3	M1
(a)	$(x - 4)(x + 3) = 0$	M1
(a)	$x = 4$ or $x = -3$	A1

Q20 Grade 7 Teachably style

Total: 4

Part	Mark scheme	Marks
(a)	$ac = -30$; two numbers multiplying to -30 and adding to 13: 15 and -2	M1
(a)	$5x^2 + 15x - 2x - 6 = 5x(x + 3) - 2(x + 3)$	M1
(a)	$(5x - 2)(x + 3) = 0$	M1
(a)	$x = \frac{2}{5}$ or $x = -3$	A1

END OF PAPER

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