REVISE
.wales

Factorising & solving quadratics

Mark schemes for the Factorising & solving quadratics question pack

WJEC Level 2 Additional Mathematics (9550) · Algebra

Official WJEC mark schemes for the 9 questions in the matching revise.wales question pack (52 marks total), from the 2011–2024 papers.

4	$x^2 + 5x - 36 = 0$ or $0.5x^2 + 2.5x - 18 = 0$ or equivalent	B2	Must show or imply in further working '=0' B1 for any one of the following: • $x^2 + 5x = 18 \times 2$ • $x^2/2 + 2.5x = 18$
	$(x - 4)(x + 9)\ (= 0)$ or $(x/2 - 2)(x + 9)\ (= 0)$	M1	M0 A0 if factorising not seen Factorisation must be seen FT their $ax^2 + bx + c = 0$ provided it factorises and $a \neq 0$, $b \neq 0$ and $c \neq 0$
	$x = 4$ with $x = -9$	A1 4	

		6	*Penalise including "=" -1 only throughout*
2	(7x + 1)(2x - 1)	B2	B1 (7x - 1)(2x + 1) or 7x(2x -1) + 1(2x -1) or 2x(7x +1) -1(7x + 1) Ignore sight of "=0"
	-1/7 with 1/2	B2	Must be from factorising, do not accept use of quadratic formula followed by 'factorising'. **MUST FT for their factors** FT for their factors provided equivalent difficulty, not leading to whole number solutions. B1 for each answer
		4	

	Summer 2017		
1	(5x + 3)(4x - 1)	B2	B1 (5x… 3)(4x … 1) or (5x…1)(4x…3) or 5x(4x -1) + 3(4x -1) or 4x(5x + 3) – 1(5x + 3), or (20x +12)(x - ¼) B0 for (5x + 3)(20x -5) **Ignore sight of "=0"**
	-3/5 and 1/4	B2	Must be from factorising, do not accept use of quadratic formula followed by 'factorising'. **MUST FT for their factors** FT for 'their factors' equivalent difficulty not leading to whole number solutions. B1 for each answer
		4	

	Summer 2016		
1	(a)(i)(7x +2)(3x - 2)	B2	B1 (7x - 2)(3x + 2) or 7x(3x -2) + 2(3x – 2) or (x - ⅔)(21x +6) or '(7x + 2) and/or (3x – 2)' or '(7x + 2) + (3x – 2)' or equivalent
	(ii) -2/7 with 2/3 or -0.2857… or -0.286 with 0.666..	B2	If a restart in (ii) to factorise, do not alter marking in (i), unless the candidate is clearly replacing their answer (i) Ignore sight of "=0" Must be from factorising. STRICT FT for their factors. B1 for each answer Do not accept from the use of the quadratic formula
	(b)(i) $(x+6)^2 \pm \ldots$ …… +13	B1 B1	Sight of $(x+6)^2$ or $(x + {}^{12}/_{2})^2$ Ignore sight of '=0' Accept 49 - 36 if not evaluated, otherwise mark final value. Do not accept '= -13' or '=13' *$(x + 6)^2 + 13$, B1, B1 ISW.*
	Least value (+)13	B1	Must follow completing the square FT their value but not 49 or - 36
	(ii) (x =) -6	B1	FT from 'their $(x+6)^2$' Do not accept (-6, 13)
		8	

	Summer 2015		
1	(2x - 5)(3x + 2)	B2	B1 (2x… 5)(3x … 2) or (2x…2)(3x…5) Ignore sight of "=0"
	5/2 and -2/3	B2	Must be from factorising, do not accept use of quadratic formula followed by 'factorising'. **MUST FT for their factors** FT for their factors equivalent difficulty not leading to whole number solutions. B1 for each answer Allow -0.66 or -0.7 as a solution provided 3x = -2 is seen in working
		4	

		3	
2	(a)(5x +2)(3x - 4)	B2	B1 (5x - 2)(3x + 4). Ignore sight of "=0"
	-2/5 or 4/3	B2	Must be from factorising. STRICT FT for their factors. B1 for each answer
	(b) $(x+5)^2 \pm \ldots$	B1	Sight of $(x+5)^2$. Ignore sight of '=0'
	…….. -22	B1	Accept - 25 + 3 if not evaluated, otherwise mark final value. Do not accept '=22' *$(x+5)^2 - 22$, B1, B1 ISW.*
	Least value -22	B1	FT their value but not -25 or +3
		7	

		3	ISW once simplified to stages shown in (b) and (c)
2	(a)(4x +1)(2x - 3) -1/4 or 3/2	B2 B2	B1 (4x - 1)(2x + 3). Ignore sight of "=0" Must be from factorising. MUST FT for their factors FT for their factors. B1 for each answer
	(b) $(x+6)^2 \pm \ldots$ …….. -31 Least value -31	B1 B1 B1	Sight of $(x+6)^2$ Accept - 36 + 5 if not evaluated, otherwise mark final value FT their value but not -36 or +5. Accept 'least is x=-31'
		7	

			Answer only, no working shown, MO A0 A0
9	(a)(5x +3)(3x - 2)	B2	B1 (5x … 3)(3x … 2). Ignore sight of "=0"
	-3/5 or 2/3	B2	Strict FT from (a) if (5x..3)(3x..2) or (5x..2)(3x..3).
	(b) $(x+5)^2$	B1	B1 for each answer
	-10	B1	Sight of $(x+5)^2$ or $(x+10/2)^2$ or (x+5)(x+5)
	Least value -10	B1	Accept 15 - 25 if not evaluated, otherwise mark final value
		7	FT their value but not 25 or 15

	Summer 2011		
1	(a)(3x +1)(2x - 5)	B2	B1 (3x - 1)(2x + 5) or (2x - 1)(3x – 5). Ignore sight of "=0"
	-1/3 or 5/2	B2	FT for their factors. B1 for each answer
	(b) $(x+3)^2 \pm \ldots$	B1	Sight of $(x+3)^2$
	…….. - 4	B1	Accept - 9 + 5 if not evaluated, otherwise mark final value
	Least value -4 (indicated) ISW	B1	FT their value but not -9 or +5
		7	

End of solutions