REVISE
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Coordinate geometry — straight lines

Mark schemes for the Coordinate geometry — straight lines question pack

WJEC Level 2 Additional Mathematics (9550) · Coordinate geometry

Official WJEC mark schemes for the 14 questions in the matching revise.wales question pack (121 marks total), from the 2011–2024 papers.

13	Midpoint $(2 + -4)/2, (7 + -5)/2$ or equivalent $(-1, 1)$ $m = 4$ $\frac{y-1}{x-(-1)} = 4$ or $y - 1 = 4(x + 1)$ or $1 = 4 \times -1 + c$ or $c = 5$ $4x - y + 5 = 0$ or $y - 4x - 5 = 0$	M1 A1 B1 M1 A2 6	Accept $(-1, \ldots)$ or $(\ldots, 1)$ CAO. Allow $(x =) -1$ (and $y =) 1$ Award M1 A1 for $(-1, 1)$ if unsupported, provided not from incorrect working FT 'their midpoint' and 'their m' (including -1/4 or 8), provided 'their m' $\neq -1, 0$ or 1 Must be in the form $ax + by + c = 0$ Only FT for A2 from 'their midpoint' and use of $m = 4$ A1 for $y = 4x + 5$ FT for possible A1 from 'their midpoint' and 'their m' (including -1/4 or 8) for an answer in the form $ax + by + c = 0$

10	(a)(i) $(AB^2 =)\ (4 - -8)^2 + (6 - 1)^2$ $(=12^2 + 5^2)$ or $AB = \sqrt{169}$	M1	Or equivalent
	$(AB\ =)\ 13$	A1	CAO. An unsupported 13 is awarded M1 A1
	(a)(ii) Gradient AB $(6 - 1) / (4 - - 8)$	M1	Check if 4 - -8 and 6-1 are from incorrect evaluations in (a)(i), provided these calculations are seen, allow M1 but A0
	$= 5/12$	A1	Mark final answer and then FT Must be simplified if FT is a whole number Allow -5/-12 provided not contradicted as -5/12 in further working Allow 0.416(66…) For M1 A1, but FT for B1 must be given as -2.4
	Perpendicular gradient is $-12/5$	B1	FT -1/'their 5/12' Award of B1 for -12/5 implies previous M1 and A1
	(a)(iii) $(4 + - 8)/2, (6 + 1)/2$ or equivalent	M1	
	Midpoint AB (-2, 3.5) or equivalent	A1	CAO. ISW. Allow (x =) -2 (and y =) 3.5 Award M1 A1 for (-2, 3.5) if unsupported, provided not from incorrect working
	(b) $9 = 4\times\text{-}3 + c$ or $y - 9 = 4(x - -3)$ or $4 = \frac{y - 9}{x - -3}$	M1	
	$y = 4x + 21$	A1 9	CAO. Must be in this form

11	(a)(i) $(AB^2 =) (12-\text{-}3)^2 + (6 - 3)^2$ $(=15^2 + 3^2)$ $AB = \sqrt{234}$ $= 3\sqrt{26}$	M1 A1 B1	Or equivalent. Allow 1 slip in sign of substitution CAO. Allow for sight of 15.297... FT 'their AB' of equivalent difficulty expressed correctly, e.g. needs to be in the form $a\sqrt{b}$ where $a \neq 1$ and $b \neq 1$ or simpler Sight of $3\sqrt{26}$ implies previous $\sqrt{234}$
	(a)(ii) Gradient AB $(6 - 3) / (12 - \text{-}3)$ $= 3/15$ $(= ⅕)$ Perpendicular gradient is -5	M1 A1 B1	Or equivalent CAO. Mark final answer and then FT Must be simplified if FT is a whole number
	(a)(iii) $(12 + \text{-} 3)/2$, $(6 + 3)/2$ Midpoint AB $(9/2 , 9/2)$ or $(4.5, 4.5)$ or equivalent	M1 A1	Need to see working for x and y coordinate CAO
	(b) $15 = 6\times2 + c$ or $c = 3$ or $y - 15 = 6(x - 2)$ or $6 = \frac{y - 15}{x - 2}$ $y = 6x + 3$	M1 A1 10	

7	(a) $(3)^3 + 8(3)^2 - 2(3) + 6$ (= 27 + 72 - 6 + 6) = 99	M1 A1	Or division method giving $x^2 + 11x$ …
	(b)(i) Substitute x = -3 Showing f(-3) = 0	M1 A1	Or division method giving $x^2 - 2x$ … Convincing from working shown (not if incorrect working seen), allow $(-3)^3 + (-3)^2 - 41(-3) - 105 = 0$, also allow for sight of $-3^3 + -3^2 - 41\times-3 - 105 = 0$ provided no incorrect calculation is given such as -3^2 as -9
	(ii) $(x + 3)(x^2 + bx + c)$ or intention to divide by (x+ 3) with x^2 shown ((x + 3)) (x^2 - 2x - 35) ((x + 3))(x + 5)(x - 7)	M1 A2 A1 A1 8	A1 for -2x or -35. Or use of factor theorem A1 (x+5), A1 (x- 7) CAO. Mark final answer, *but ignore attempts to 'solve'*
8	(dy/dx=) $12x^2 - 6x$ dy/dx = 0 or $12x^2 - 6x = 0$ or $12x^2 = 6x$ x = 0 and y = 20 x = ½ and y = 19¾ $d^2y/dx^2 = 24x - 6$ (0, (20)): $d^2y/dx^2 < 0$, point is a maximum (½, (19¾)): $d^2y/dx^2 > 0$, point is a minimum	B1 M1 A1 A1 M1 A1 A1 7	FT their dy/dx form $ax^2 \pm bx$ If A0, A0 here, award A1 for x = 0 with x = ½ *Answer only, no working shown M0 A0 A0* Or first derivative test, interpretation of first derivative test. Or alternative (e.g. full graphical method with explanation) FT for their x value FT for their other x value provided this does not have the same interpretation as the first x value *Answer only, no working shown M0 A0 A0* *If $d^2y/dx^2 = cx + d$ where $c \neq 0$ and test applied correctly then SC2 instead of final A1, A1 (as M1 has not been awarded))provided one minimum and one maximum*
9	$\frac{\sqrt{3}}{2} \times \frac{1}{2} = \frac{\sqrt{3}}{4}$	B1 1	**Working must be shown**
10	(a) $FG^2 = (-4 - 8)^2 + (10 - 28)^2$ (= $12^2 + 18^2$ = 468) FG = $6\sqrt{13}$	M1 A1	Or equivalent. Allow 1 slip or error M1, A0 for answers $\sqrt{468}$ or 21.6(3...) CAO
	(b) Gradient FG (28-10)/(8 - -4) = 18/12 (= 9/6 = 3/2)	M1 A1	Do not ignore incorrect cancelling, mark final answer
	(c) (-4 + 8)/2 or (10 + 28)/2 Mid point (2, 19)	M1 A1	Sight of (2, …) or (… , 19) implies M1 provided no incorrect working is seen
	Perpendicular gradient -2/3 (or -6/9 or -12/18)	B1	FT -1/ 'their answer in (b)'
	$\frac{y - 19}{x - 2} = \frac{-2}{3}$ or 19 = -2/3 × 2 + c y – 19 = -2/3(x - 2) or 3(y – 19) = -2(x – 2) or 3y = -2x + 61 or c = 20⅓ or c = 61/3	M1 m1	OR for an alternative correct method of finding the equation of a straight line, for the idea of how an equation of a straight line can be found. FT 'their perpendicular gradient' or 'their answer in (b)' AND 'their mid point' or for 'points F or G' used **Do not allow** use gradient from their answer in (b), and/or points F or G as the mid-point of FG. Only FT for 'their perpendicular gradient' (not 'their answer' from (b)) AND 'their mid point'
	2x + 3y – 61 = 0 or -2x – 3y + 61 = 0	A1 10	CAO. Must be in this form with '=0' with terms in any order

11	(a) Correct shaped graph with (0°,) 180° & 360° labelled on the x-axis AND 2, 7 & 12 labelled on the y-axis	B3	Ignore outside the required range *Intention for approximately (0°, 7), (90°, 2), (180°, 7), (270°, 12) and (360°, 7)* B2 awarded a for correct shape graph with conditions: • sinx reflected • with one complete period, labelled 0° to 360° • with difference in y values between maximum and minimum of 10, for their labels OR B1 for a correct shape graph with any 2 of the 3 bullet points above met, OR B1 for a graph with all 3 bullet points above met but joined by straight lines (even if turning points curved), OR B1 for a curved graph through intended points: (0°, 7), (90°, 2), (180°, 7), (270°, 12) and (360°, 7)
	(b) Maximum value 12 AND Minimum value 2	B1	Accept Maximum (270(°), 12) and Minimum (90(°), 2) Allow unsupported correct responses
		4	FT provided at least B2 previously awarded in (a)
12	(a) $(dy/dx=)\ 16x^7+8x$	B1	
	$(d^2y/dx^2=)\ 112x^6+8$	B1	FT to 2nd B1 from $dy/dx = kx^n$ (+ …)
	(b) $(5/5)\ x^5+(3/-1)\ x^{-1}+(-2/-2)x^{-2}$ $(=x^5-3x^{-1}+x^{-2})$	B3	B1 for each term. Accept unsimplified. ISW
	$+c$ (constant)	B1	Award if at least B1 given for integration
		B2	B1 for $6x^2/2$ or $10x$
	(c) $6x^2/2+10x$ $[6x^2/2+10x]_2^3$ and with intention to substitute and subtract	M1	Intention to use 3, 2 (in either order) **and** subtract FT their integration, not the same terms as given or differentiated, this includes if there is only1 term seen.
	$=(6\times3^2/2+10\times3)-(6\times2^2/2+10\times2)$ $(=\ 57-32)$	A1	FT for correct use of limits provided working with 2 terms from 'their integration'
	$=\ 25$	A1	CAO, not FT. *Answer only, no working shown, M0A0A0*
		11	
13	(When x = 2) y = 27	B1	
	(Gradient when x = 2, dy/dx =) $5\times2x$ 20	M1 A1	For differentiation, before substitution of x = 2
	Equation $\frac{y-27}{x-2}=20$ or $27=20\times2+c$	M1	FT values for 'their 27' and 'their 20' provided at least one of these is correct.
	$y-27=20(x-2)$ or $c=-13$	m1	Implies previous M1
	$y=20x-13$	A1	CAO. Mark final answer
		6	
14	Method to solve simultaneously, e.g. use of $y=2x+1$ or $x=(y-1)/2$ into the first equation	M1	$2x+1=x^2-5x+13$ or $y=\frac{(y-1)^2}{2^2}-\frac{5(y-1)}{2}+13$
	$x^2-7x+12=0$ or $y^2-16y+63=0$	A1	Or equivalent but must '=0' or implied in further working
	$(x-3)(x-4)\ (=0)$ or $(y-9)(y-7)\ (=0)$	m1	OR $x=(7\pm\sqrt{1})/2$ or $y=(16\pm\sqrt{4})/2$
	(3, 7) and (4, 9)	A1	FT from their quadratic CAO Need not be in this form, accept x=3, y=7 with x=4, y=9 x & y values must be given
		4	Do not accept unsupported responses Do not accept trial & improvement

15	Working to support that (7, 10) and (2, -5) both lie on the curve	B2 2	Working, e.g. • substituting the x-values and correctly finding y-values • substituting coordinates for the points and showing "=55" (Allow sight of -5^2 in working provided -25 is not seen) B1 for either correct working for either point
16	Intention to integrate $-x^3/3 + 8x^2/2 - 12x$ Use of correct limits 6 & 2 in the correct order **and** intention to subtract 32/3 or 10.66(6…) or 10.7	M1 A2 m1 A1 5	Intention to integrate (not using given or differentiated) A1 one term correct. The limits must be used in the correct order CAO. Only allow 10.6 from correct working seen *Answer only gets no marks* *No marks for use of the trapezium rule*

11	(a) $(AB^2 =)\ (16-8)^2 + (10 - -6)^2\ (=8^2 + 16^2)$	M1	Or equivalent. Allow 1 slip in sign of substitution
	$AB = \sqrt{320}$ $= 8\sqrt{5}$	A1 B1	CAO. Allow for sight of 17.88... or 17.9 FT 'their AB' of equivalent difficulty expressed correctly, e.g. $\sqrt{272} = 4\sqrt{17}$, needs to be in the form $a\sqrt{b}$ where $a \neq 1$ and $b \neq 1$ or simpler Sight of $8\sqrt{5}$ implies previous $\sqrt{320}$
	(b) Gradient AB $(16 - 8) / (10 - -6)$ $= 8/16\ (= ½)$ Gradient perpendicular $-16/8\ (= -2)$	M1 A1 B1	Or equivalent CAO. Mark final answer and then FT FT -1/grad AB
	$(10 + -6)/2, (16 + 8)/2$ Midpoint AB $(2, 12)$ or equivalent	M1 A1	Accept (2, …) or (… , 12) CAO
	Use of $y=mx+c$ or $y-y_1= m(x-x_1)$ or $m = \frac{y-y_1}{x-x_1}$	M1	Method to find the equation using midpoint and perpendicular gradient (not 8/16 or ½ or 'their gradient') FT their midpoint (not A or B) & their perpendicular gradient, or FT substitution of their midpoint with their perpendicular gradient in $y = mx + c$ (towards finding c) *If no working for finding gradient is seen, then 'their 'spurious' incorrect perpendicular gradient' must be negative*
	$y - 12 = -2(x - 2)$ or other unsimplified linear correct equation (not quotient form)	A1	FT for correct unsimplified form, not written in quotient form
	$y = -2x + 16$	A1 11	CAO

	Summer 2017		
6	(a) $(FG^2 =)\ (20-10)^2 + (8--4)^2\ (=10^2 + 12^2)$	M1	Or equivalent. Allow 1 slip in sign of substitution Allow for sight of $10^2 + 12^2$
	$FG = \sqrt{244}$	A1	CAO
	$= 2\sqrt{61}$	B1	FT 'their FG' of equivalent difficulty expressed correctly, e.g. $\sqrt{104} = 2\sqrt{26}$, or $\sqrt{44} = 2\sqrt{11}$needs to be in the form $a\sqrt{b}$ where $a \neq 1$ and $b \neq 1$ or simpler Sight of $2\sqrt{61}$ implies previous $\sqrt{244}$
	(b) Gradient FG $(20-10)/(8--4)$	M1	Or equivalent
	$= 10/12\ (= 5/6)$	A1	CAO. Mark final answer and then FT
	Gradient perpendicular $-12/10\ (= -6/5)$	B1	FT -1/grad FG
	$(8+-4)/2, (20+10)/2$	M1	Accept (2, …) or (… , 15)
	Mid point FG (2, 15) or equivalent	A1	CAO
	Use of $y=mx+c$ or $\frac{y-y_1}{x-x_1} = m$	M1	Must show substitution of 3 values Method to find the equation using mid-point and perpendicular gradient (not 10/12 or 5/6 or 'their gradient') FT their mid-point (not F or G) & their perpendicular gradient (not 10/12 or 5/6 or 'their gradient'), or FT substitution of their midpoint with their perpendicular gradient (not 10/12 or 5/6 or 'their gradient'), in $y = mx + c$ (towards finding c) *If no working for finding gradient is seen, then 'their 'spurious' incorrect perpendicular gradient' must be negative*
	$y = -12x/10 + 17⅗$ or $y - 15 = -12/10(x-2)$	A1	FT for correct unsimplified form, not written in quotient form, i.e. $\frac{y-15}{x-2} = \frac{-12}{10}$
	$6x + 5y - 87 = 0$ OR $-6x - 5y + 87 = 0$	A2	Accept terms in different orders provided '=0' CAO for A2 and A1 A1 for $12x + 10y - 174 = 0$ or other multiple of the correct response (not with fractional coefficients), with integer values for a, b and c, and with terms in any order provided '=0', OR A1 for $5y = -6x + 87$ or equivalent correct simplified equation but not given in the required form
		12	

	Additional Mathematics Summer 2017		Final Version

Summer 2016

7	(a) $FG^2 = (-2-4)^2 + (14-6)^2$ $(= 6^2 + 8^2)$ $FG = \sqrt{100}$ $(= 10)$	M1 A1	Or equivalent. Allow 1 slip or error CAO
	(b) Gradient FG $(14-6)/(-2-4)$ $= 8/-6$ $(= -4/3)$	M1 A1	Do not ignore incorrect cancelling, mark final answer
	(c) $(-2+4)/2$ or $(14+6)/2$	M1	Sight of (1, …) or (… , 10) implies M1 provided no incorrect working is seen
	Mid point (1, 10)	A1	
	Perpendicular gradient ¾ (or 6/8)	B1	FT -1/ 'their answer in (b)'
	$\frac{y-10}{x-1} = \frac{3}{4}$ or $10 = \frac{3}{4} \times 1 + c$	M1	OR for an alternative correct method of finding the equation of a straight line, for the idea of how an equation of a straight line can be found. FT 'their perpendicular gradient' or 'their answer in (b)' AND 'their mid point' or for 'points F or G' used
	$y - 10 = \frac{3}{4}(x-1)$ or $4(y-10) = 3(x-1)$ or $4y = 3x + 37$ or $c = 9\frac{1}{4}$ or $c = 37/4$	m1	**Do not allow** for use gradient from their answer in (b), and/or points F or G. Only FT for 'their perpendicular gradient' (with B1 previously awarded) AND 'their mid point'
	$4y - 3x - 37 = 0$ or $3x - 4y + 37 = 0$	A1 10	CAO. Must be in this form with '=0'

4	(a) $(DE^2 =)\ (6- -4)^2 + (22 - 14)^2\ (=10^2 + 8^2)$	M1	Or $(-4 - 6)^2 + (14 - 22)^2$. Allow 1 slip in sign of substitution
		A1	CAO
	$DE = \sqrt{164}$ $= 2\sqrt{41}$	B1	FT 'their DE' of equivalent difficulty expressed correctly, e.g. $\sqrt{18} = 3\sqrt{2}$, needs to be in the form $a\sqrt{b}$ where $a \neq 1$ and $b \neq 1$ or simpler Sight of $2\sqrt{41}$ implies previous $\sqrt{164}$
	(b) Gradient DE $(22 - 14) / (6 - -4)$	M1	Or $(14 - 22)/(-4 - 6)$
	$= 8/10\ (= 4/5)$	A1	CAO. Mark final answer and then FT
	Gradient perpendicular $-10/8\ (= -5/4)$	B1	FT -1/grad DE
	$(6+-4)/2, (22 + 14)/2$	M1	Accept (1, …) or (… , 18)
	Mid point DE (1, 18) or equivalent	A1	CAO
	Use of $y=mx+c$ or $y-y_1= m(x-x_1)$	M1	Method to find the equation using mid-point and perpendicular gradient (not 8/10) FT their mid-point (not D or E) & their perpendicular gradient, or FT substitution of their midpoint with their perpendicular gradient in $y = mx + c$ (towards finding c) *If no working for finding gradient is seen, then 'their 'spurious' incorrect perpendicular gradient' must be negative*
	$y = -10x/8 + 19¼$ or $y - 18 = -10/8\ (x - 1)$	A1	FT for correct unsimplified form, not written in quotient form
	$10x + 8y - 154=0$ OR $5x + 4y - 77 = 0$ OR $-10x - 8y + 154=0$ OR $-5x - 4y + 77 = 0$	A1 11	CAO. Form $ax + by + c = 0$ or a rearrange of this provided it is '=0'

		Additional Mathematics Summer 2015			Final	

7	(a) $DE^2 = (-1-5)^2 + (13-5)^2$ $(= 6^2 + 8^2)$ $DE = \sqrt{100}$ $(=10)$ (b) Gradient DE $(13-5)/(-1-5)$ $= -8/6$ $(= -4/3$ or $-1.33..)$ (c) $\frac{y-13}{x--1}$ OR $\frac{y-5}{x-5}$ equated to $-4/3$ or $13 = -4/3 \times -1 + c$ or $5 = -4/3 \times 5 + c$ $3(y-13) = -4(x+1)$ or $3(y-5) = -4(x-5)$ or $(y-13) = -4/3(x+1)$ or $c = 35/3$ $3y - 39 = -4x - 4$ or $3y - 15 = -4x + 20$ or $y = -4x/3 + 35/3$ $4x + 3y = 35$	M1 A1 M1 A1 M1 M1 A1 A1 8	Or equivalent. Allow 1 slip or error CAO Do not ignore incorrect cancelling, mark final answer Allow -1.3 FT their gradient Implies 1st M1 FT from 1 arithmetical error, and for their gradient from (b) OR equivalent correct expansion of brackets, unsimplified. FT from the 1 error and for gradient from (b) CAO or a multiple of $4x + 3y = 35$. Must be in this form *Accept $3y + 4x = 35$, but do not accept $4x + 3y - 35 = 0$* *Candidates may use the mid-point (2, 9), follow mark scheme as given. With evidence of attempting to find mid point, with incorrect mid-point, penalise -1 then follow mark scheme as given.*

Q	Additional Mathematics Summer 2014	Marks	Final

	Summer 2014		
13	(a) $2x + 4y = 7$ and $x + 2y = 7$ selected	B1	
	Explanation, e.g. showing or sight of m= -1/2 for both	E1	Depends on B1
	(b) Either $2x + 4y = 7$ and $4x - 2y = 7$, or $x + 2y = 7$ and $4x - 2y = 7$	B1	
	Explanation, e.g. showing or sight of $m_1 = -1/2$ & $m_2 = 2$	E1	Depends on B1
	Showing $-1/2 \times 2 = -1$ or states 'one (gradient) is the negative reciprocal of the other (gradient)' or similar	E1	Depends on B1
		5	

		1	*No marks for an unsupported correct answer*
4	(a) $(AB^2 =)\ (3 - -5)^2 + (9 - 7)^2\ (=8^2 + 2^2)$ $AB = \sqrt{68}$ $= 2\sqrt{17}$	M1 A1 B1	Or $(-5 - 3)^2 + (7 - 9)^2$. Allow 1 slip in sign CAO FT 'their AB' of equivalent difficulty expressed correctly Sight of $2\sqrt{17}$ implies previous $\sqrt{68}$
	(b) Grad. AB $(9 - 7) / (3 - -5)$ $= 2/8\ (= 1/4)$ Grad. perpendicular $-8/2\ (= -4)$	M1 A1 B1	Or $(7 - 9)/(-5 - 3)$ CAO. Mark final answer and then FT FT -1/grad AB
	$(3+-5)/2\ ,\ (9 + 7)/2$ Mid point AB $(-1\ ,\ 8)$ or equivalent	M1 A1	Accept $(-1, \ldots)$ or $(\ldots\ , 8)$ CAO
	Use of $y=mx+c$ or $y-y_1= m(x-x_1)$	M1	Method to find the equation FT their mid-point (not A or B) & their perpend. grad.
	$y - 8 = -8/2\ (x - -1)$ $y = -4x + 4$	A1 A1	Unsimplified form Form $y=mx+c$. Accept factorised form
	QWC2: Candidates will be expected to present work clearly, with words explaining process or steps AND • make few if any mistakes in mathematical form, spelling, punctuation and grammar in their answer QWC1: Candidates will be expected to • present work clearly, with words explaining process or steps OR • make few if any mistakes in mathematical form, spelling, punctuation and grammar in their final answer	QWC 2 13	QWC2 Presents material in a coherent and logical manner, using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC1 Presents material in a coherent and logical manner but with some errors in use of mathematical form, spelling, punctuation or grammar OR evident weaknesses in organisation of material but using acceptable mathematical form, with few if any errors in spelling, punctuation and grammar. QWC0 Evident weaknesses in organisation of material, and errors in use of mathematical form, spelling, punctuation or grammar.

Q	Additional Mathematics Summer 2013	Marks	Final

		6	
7	(a) $RS^2 = (31-7)^2 + (15-5)^2$ $(= 24^2 + 10^2)$	M1	Or equivalent. Allow 1 slip or error
	$RS = \sqrt{676}$ (=26)	A1	CAO
	(b) Gradient RS (31-7)/(15-5)	M1	
	=12/5 or equivalent	A1	Do not ignore incorrect cancelling in (b)
	Perpendicular gradient -5/12 or equivalent	B1	FT -1/'their gradient RS'.
		5	Do not accept fraction of a (decimal) fraction

		5	
3	(a) $(AB^2 =)\ (2-4)^2 + (8- -6)^2\ (=2^2+14^2)$	M1	Allow $(2-4)^2 + (8-6)^2$
	$AB = \sqrt{200}$ ISW $(=14.14\ldots \text{ or } 10\sqrt{2})$	A1	CAO
	(b) Grad. AB $(8- -6)/(2-4)$	M1	Allow (8-6)/(2-4) or (6-8)/(4-2)
	$= 14/-2\ (= -7)$	A1	
	Grad. perpendicular $2/14\ (= 1/7)$	B1	FT -1/grad AB
	$(2+4)/2\ ,\ (8+-6)/2$	M1	Accept (3, …) or (… , 1)
	Mid point AB (3 , 1) or equivalent	A1	CAO
	Use of $y=mx+c$ or $y-y_1 = m(x-x_1)$	M1	FT their mid-point (not A or B) & their perpendicular grad.
	$y-1 = 1/7\ (x-3)$ ISW	A1	CAO $(x-7y+4=0)\ \ (y = x/7 + 4/7)$

End of solutions