

1) QUESTION 4

Condition	Line
$m > 0$ and $c > 0$	$L_5$
$m < 0$ and $c > 0$	$L_4$
$m < 0$ and $c < 0$	$L_1$
$m > 0$ and $c < 0$	$L_3$

(A6) (C6)

**Notes:** Award (A6) for all correct, (A5) for 3 correct, (A3) for 2 correct, (A1) for 1 correct. Deduct (A1) for any repetition.

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2) QUESTION 4

(a)  $-2$

(A1) (C1)

**Note:** Accept  $(0, -2)$

(b)  $-\frac{1}{2}$

(A1) (C1)

(c)  $2$

(A1)(ft) (C1)

**Note:** Follow through from their answer to part (b).

(d)  $y = 2x + c$  (can be implied)  
 $7 = 2 \times 3 + c$   
 $c = 1$   
 $y = 2x + 1$

(M1)  
 (A1)(ft)

**Notes:** Award (M1) for substitution of  $(3, 7)$ , (A1)(ft) for  $c$ . Follow through from their answer to part (c).

**OR**

$y - 7 = 2(x - 3)$

(M1)(M1)

**Note:** Award (M1) for substitution of their answer to part (c), (M1) for substitution of  $(3, 7)$ .

$2x - y + 1 = 0$  or  $-2x + y - 1 = 0$

(A1)(ft) (C3)

**Note:** Award (A1)(ft) for their equation in the stated form.

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3)

**QUESTION 10**

(a) Gradient =  $\frac{(5-1)}{(4-2)}$  *(M1)*

**Note:** Award *(M1)* for correct substitution in the gradient formula.

= 2 *(A1)* *(C2)*

(b) Midpoint = (3, 3) (accept  $x=3, y=3$ ) *(A1)* *(C1)*

(c) Gradient of perpendicular =  $-\frac{1}{2}$  *(A1)(ft)*

$y = -\frac{1}{2}x + c$  *(M1)*

$3 = -\frac{1}{2} \times 3 + c$

$c = 4.5$

$y = -0.5x + 4.5$  *(A1)(ft)*

**OR**

$y - 3 = -0.5(x - 3)$  *(A1)(A1)(ft)*

**Note:** Award *(A1)* for -0.5, *(A1)* for both threes.

**OR**

$2y + x = 9$  *(A1)(A1)(ft)* *(C3)*

**Note:** Award *(A1)* for 2, *(A1)* for 9.

*[6 marks]*

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4)

**QUESTION 7**

(a)  $0 + 2y = 12$  or  $x + 2(0) = 12$  *(M1)*  
 P(0, 6) (accept  $x=0, y=6$ ) *(A1)*  
 Q(12, 0) (accept  $x=12, y=0$ ) *(A1)* *(C3)*

**Notes:** Award *(M1)* for setting either value to zero.  
 Missing coordinate brackets receive *(A0)* the first time this occurs.  
 Award *(A0)(A1)(ft)* for P(0, 12) and Q(6, 0)

(b)  $x + 2(x - 3) = 12$  *(M1)*  
 (6, 3) (accept  $x=6, y=3$ ) *(A1)(A1)* *(C3)*

**Note:** *(A1)* for each correct coordinate  
 Missing coordinate brackets receive *(A0)(A1)* if this is the first time it occurs.

*[6 marks]*

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Geometry and Trig

Straight lines

Answers

5)

<b>Q7.</b>	(a) $4y = -x - 34$ or similar rearrangement Gradient = $-\frac{1}{4}$	(M1)	(C2)
	(b) $m = 4$ (A1) Change of sign (A1) Use of reciprocal	(A1)(ft)	(C2)
	(c) Reasonable attempt to solve equations simultaneously  (-2, -8) Accept $x = -2$ $y = -8$ Award (A0) if brackets not included.	(M1)	(C2)
		[6 marks]	

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6)

<b>Q6</b>	(a) 3	(A1)	(C1)
	(b) $-1/3$ (ft) from (a)	(A1)(ft)	(C1)
	(c) Substituting (6, 7) in $y = mx + c$ or equivalent to find $c$ .  $y = \frac{-1}{3}x + 9$ or equivalent	(M1)	(C2)
	(d) (1.5, 8.5) Award (A1) for 1.5, (A1) for 8.5. (ft) from (c), brackets not required.	(A1)(A1)(ft)	(C2)
		[6 marks]	

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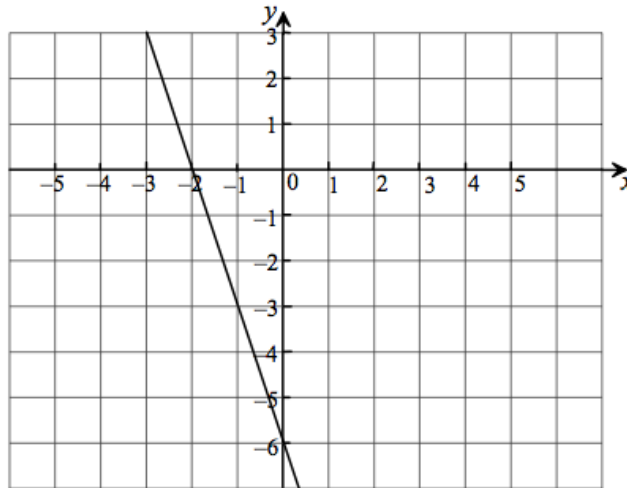
7)

<b>Q13</b>	(a) $s = 6$ $t = -2$	(A1)	(C2)	
	(b) gradient of AB = $\frac{-2-8}{-2-6} = \frac{-10}{-8} = \frac{5}{4}$ (A1) for gradient of AM or BM = $\frac{5}{4}$  Perpendicular gradient = $-\frac{4}{5}$	(A1)(ft)		
	Equation of perpendicular bisector is $y = -\frac{4}{5}x + c$  $3 = -\frac{4}{5}(2) + c$ $c = 4.6$ $y = -0.8x + 4.6$ or $5y = -4x + 23$	(A1)(ft)	(C4)	
			(M1)	
			(A1)(ft)	(C4)
		[6 marks]		

N07/5/MATSD/SP1/ENG/TZ0/XX+

8)

QUESTION 3



- (a) line passes through  $(-2, 0)$  (A1)
- line is straight (A1)
- negative gradient (line must be straight for mark to be awarded) (A1)
- correct gradient (line must be straight for mark to be awarded) (A1) (C4)
- (b)  $y - 0 = -3(x + 2)$  or  $3x + y = 3(-2) + 1(0)$  or  $y = -3x + c$  etc (M1)
- $3x + y = -6$  (or equivalent) (A1)(A1)(A1) (C4)

**Note:** Award (C4) ft for  $y = -3x +$  candidate's  $y$ -intercept (or equivalent).  
 Otherwise award:  
 (A1) for  $y$  with  $=$  in a linear equation,  
 (A1) for  $y = -3x$  or  $y + 3x$  seen or for  $m = -3$ ,  
 (A1) for candidate's  $y$ -intercept included in a linear expression.  
**Do not** ft candidate's gradient if it is wrong in the diagram,  
 no mark for stand alone  $-3x$

9)

M05/5/MATSD/SP1/ENG/TZ0/XX+

QUESTION 9

- (a)  $L_1$  has gradient 2 and  $L_2$  has gradient  $-\frac{1}{4}$ . (A1)(A1) (C2)

**Note:** Award (A0)(A1)ft if the order of the gradients is reversed or both signs are wrong or both are reciprocals of the correct answer.

- (b)  $L_2$  is drawn incorrectly. (A2) (C2)
- (c) The product of the gradients is  $2 \times -\frac{1}{4} = -\frac{1}{2} \neq -1$ . (M1)(A1) (C2)

**Note:** Award (M1) for looking at product of gradients,  
 (A1) for comparing something to  $-1$ .

- (d) The drawing should show a straight line passing through  $x$  and  $y$  intercepts at  $(4, 0)$  and  $(0, 1)$  respectively. (A1)(A1) (C2)

**Note:** Award (A1) for each intercept. If these are wrong but gradient is  $-\frac{1}{4}$  then (A1). If correct line is very poorly drawn then (A1).