Equation Of A Line



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8 The point *A* has co-ordinates (-4, 6) and the point *B* has co-ordinates (7, -2).

Calculate the length of the line *AB*.

Answer AB = units [3]



The diagram shows the straight line, l, which passes through the points (0, 3) and (4, 11).

(a) Find the equation of line *l* in the form y = mx + c.

 $Answer(a) y = \dots [3]$

(b) Line *p* is perpendicular to line *l*.

Write down the gradient of line p.

Answer(b) [1]



(a) Work out the gradient of the line *L*.

.....[2]

(b) Write down the equation of the line parallel to the line L that passes through the point (0, 6).

.....[2]





Point A has co-ordinates (3, 6).

(a) Write down the co-ordinates of point *B*.

(.....) [1]

(b) Find the gradient of the line *AB*.

.....[2]

(c) Find the equation of the line that

• is perpendicular to the line *AB*

and

• passes through the point (0, 2).

.....[3]

7	(a) The	e co-ordinates of <i>P</i> are $(-4, -4)$ and the co- Find the gradient of the line <i>PQ</i> .	ordinates of Q are (8, 14).	For Examiner's Use
	(ii)	Find the equation of the line <i>PQ</i> .	<i>Answer(a)</i> (i) [2]	
	(iii)	Write \overrightarrow{PQ} as a column vector.	<i>Answer(a)</i> (ii) [2]	
	(iv)	Find the magnitude of \overrightarrow{PQ} .	Answer(a)(iii) $\overrightarrow{PQ} = \begin{pmatrix} \\ \end{pmatrix}$ [1]	
			<i>Answer(a)</i> (iv)[2]	

18	A (5	, 23) and $B(-2, 2)$ are two points.	For Examiner's Use
	(a) (b)	Find the co-ordinates of the midpoint of the line <i>AB</i> . <i>Answer(a)</i> (, ,) [2] Find the equation of the line <i>AB</i> .	
	(c)	Answer(b)	
		[1]	

7	(a) The	e co-ordinates of <i>P</i> are $(-4, -4)$ and the co- Find the gradient of the line <i>PQ</i> .	ordinates of Q are (8, 14).	For Examiner's Use
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	(iii)	Write \overrightarrow{PQ} as a column vector.	<i>Answer(a)</i> (ii) [2]	
	(iv)	Find the magnitude of \overrightarrow{PQ} .	Answer(a)(iii) $\overrightarrow{PQ} = \begin{pmatrix} \\ \end{pmatrix}$ [1]	
			<i>Answer(a)</i> (iv)[2]	

- 9 A line joins the points A(-2, -5) and B(4, 13).
 - (a) Calculate the length *AB*.

(b) Find the equation of the line through A and B. Give your answer in the form y = mx + c.

(c) Another line is parallel to AB and passes through the point (0, -5).

Write down the equation of this line.

......[2]

(d) Find the equation of the perpendicular bisector of *AB*.

.....[5]

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- 8 A line AB joins the points A(3, 4) and B(5, 8).
 - (a) Write down the co-ordinates of the midpoint of the line AB.

Answer(a) (.....) [2]

(b) Calculate the distance *AB*.

Answer(b) $AB = \dots$ [3]

(c) Find the equation of the line *AB*.

(d) A line perpendicular to *AB* passes through the origin and through the point (6, *r*).Find the value of *r*.

Answer(d) $r = \dots$ [3]

20	(a)	The two lines $y = 2x + 8$ and $y = 2x - 12$ intersect the <i>x</i> -axis at <i>P</i> and <i>Q</i> . Work out the distance <i>PQ</i> .		For Examiner's Use
	(b)	Answer(a) $PQ = $ [2] Write down the equation of the line with gradient -4 passing through (0, 5).	2]	
	(c)	Answer(b) [2] Find the equation of the line parallel to the line in part (b) passing through (5, 4).	2]	
		Answer(c) [1	3]	

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A(5, 10) and B(13, -2) are two points on the line *AB*. The perpendicular bisector of the line *AB* has gradient $\frac{2}{3}$.

Find the equation of the perpendicular bisector of *AB*.