Cambridge Assessment International Education

Cambridge IGCSE®

Straight line graphs – Past paper questions

The questions in this document have been compiled from a number of past papers, as indicated in the table below.

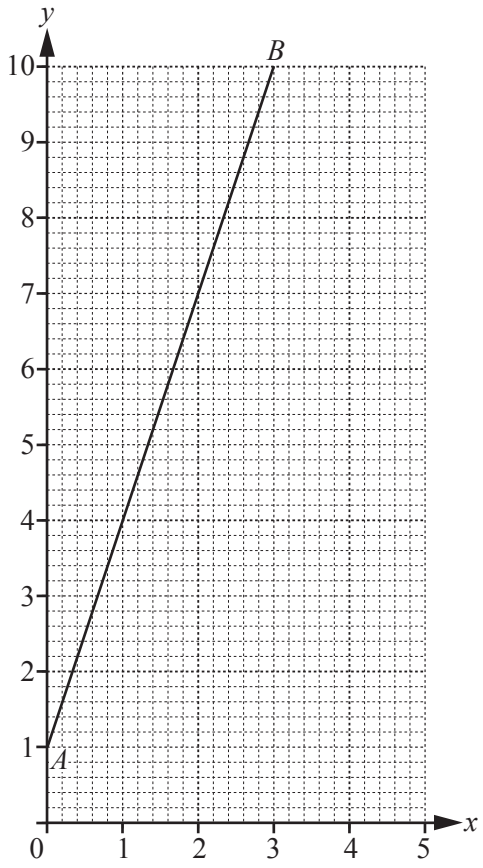
Use these questions to formatively assess your learners' understanding of this topic. Some questions have additional 'Challenge questions' included. These do not form part of the original questions, but have been added as part of the lesson plans included in Resource Plus.

Question	Year	Series	Paper number
17	2017	June	12
10	2017	June	13
12	2017	June	21
27	2017	June	22
21	2017	November	12
4a	2017	November	31
7b	2017	November	33
8	2017	November	43
7a	2020	Specimen	P3

The mark scheme for each question is provided at the end of the document.

You can find the complete question papers and the complete mark schemes (with additional notes where available) on the School Support Hub www.cambridgeinternational.org/support.

17



Find the gradient of the line AB.

..... [2]

10 Line l has the equation $y = 4x - 6$.

(a) Write down the co-ordinates of the point where line l crosses the y-axis.

(..... , ...) [1]

(b) Write down the gradient of line l.

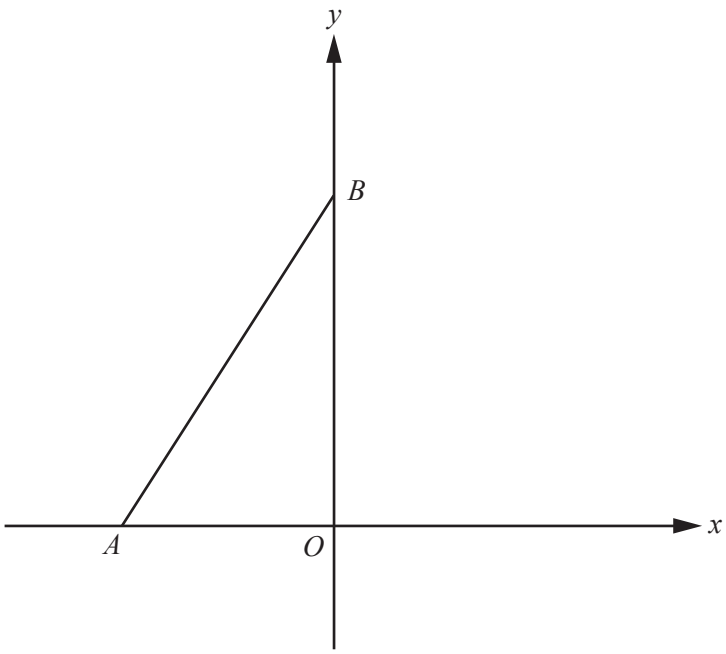
..... [1]

12 A line has gradient 5.
M and N are two points on this line.
M is the point $(x, 8)$ and N is the point $(k, 23)$.

Find an expression for x in terms of k.

$x =$ ..... [3]

27



NOT TO SCALE

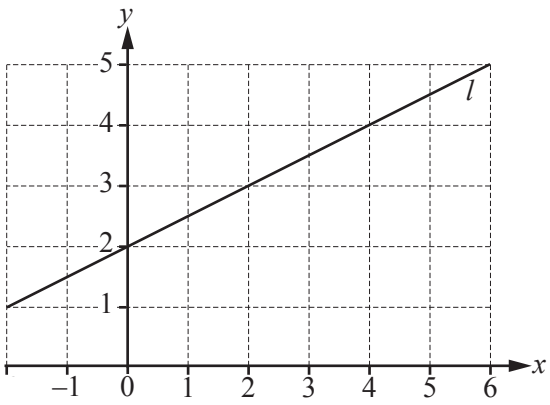
A is the point $(-2, 0)$ and B is the point $(0, 4)$.

(a) Find the equation of the straight line joining A and B.

..... [3]

(b) Find the equation of the perpendicular bisector of AB.

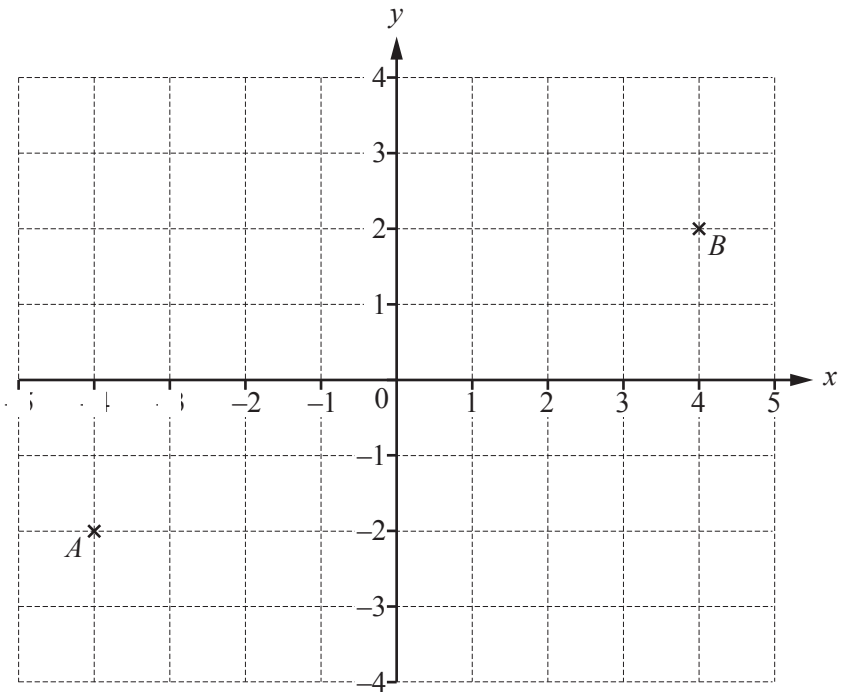
21



Find the equation of the line l in the form $y = mx + c$.

$y =$ ..... [3]

4 (a)



(i) Plot point C at (–4, 2). [1]

(ii) Write down the mathematical name of the triangle formed by joining the points A, B and C.

..... [1]

(iii) Write down the vector $\overrightarrow{AB}$.

$\overrightarrow{AB} = \begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

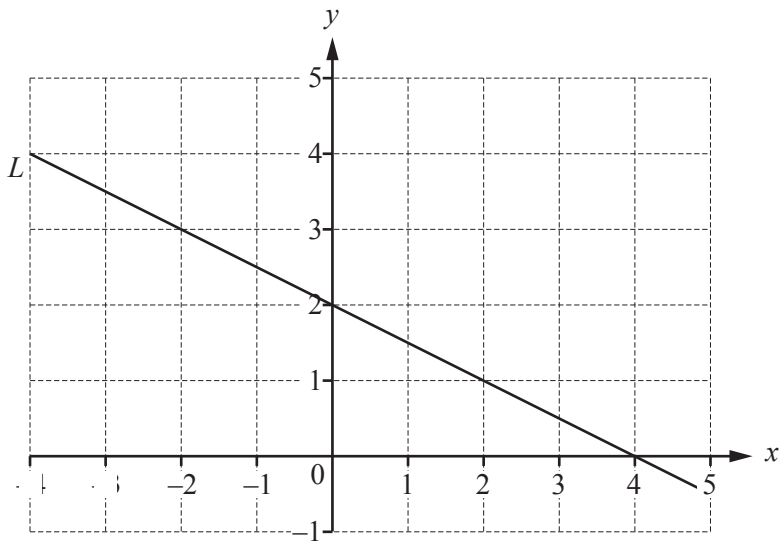
(iv) **(a)** Find the gradient of the line AB.

..... [2]

(b) Write down the equation of the line AB.

$y =$ ..... [1]

7 **(b)** Line L is drawn on the grid.



(i) Find the gradient of line L.

..... [2]

(ii) Find the equation of line L in the form $y = mx + c$.

$y =$ ..... [1]

(iii) Line M is parallel to line L.
Line M passes through the point (0, 3).

Write down the equation of line M.

$y =$ ..... [2]

8 Line A has equation $y = 5x - 4$.
Line B has equation $3x + 2y = 18$.

(a) Find the gradient of

(i) line A,

..... [1]

(ii) line B.

..... [1]

(b) Write down the co-ordinates of the point where line A crosses the x-axis.

(....., ...) [2]

(c) Find the equation of the line perpendicular to line A which passes through the point (10, 9).
Give your answer in the form $y = mx + c$.

$y =$ ..... [4]

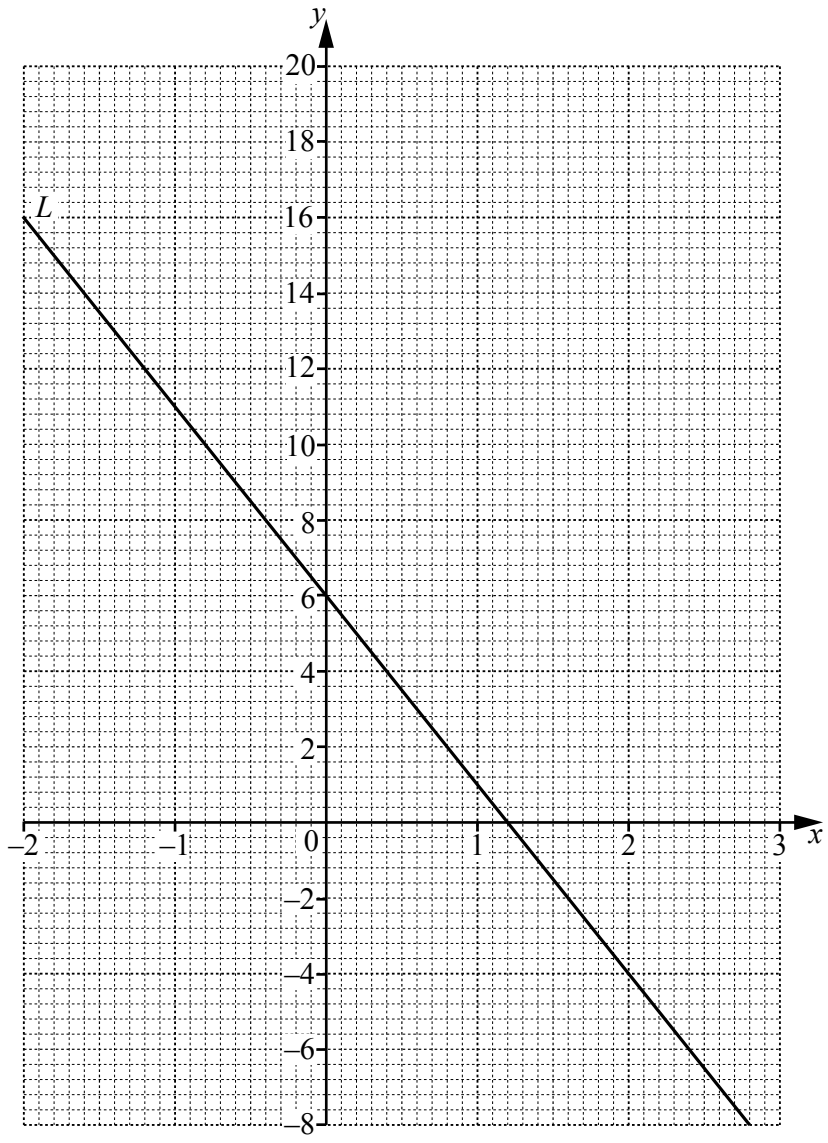
(d) Work out the co-ordinates of the point of intersection of line A and line B.

(....., ...) [3]

(e) Work out the area enclosed by line A, line B and the y-axis.

..... [3]

7



(a) The line L is shown on the grid.

Find the equation of the line in the form $y = mx + c$.

$y =$ ..... [3]

Mark schemes

Question	Answer	Marks	Part marks
17	3 cao	**2**	**M1** for rise ÷ run

Question	Answer	Marks	Part marks
10(a)	(0, −6)	**1**	
10(b)	4	**1**	

Question	Answer	Marks	Part marks
12	$k - 3$ or $-3 + k$	**3**	**M1** for $5 = \frac{23 - 8}{k - x}$ oe **M1** for $5(k - x) = 23 - 8$ or better e.g. $[x =]\ k - \frac{23 - 8}{5}$

Question	Answer	Marks	Part marks
27(a)	$y = 2x + 4$	**3**	**B2** for $2x + 4$ or $y = 2x + c$ or $y = mx + 4$ or **B1** for $2x + c$ or for $kx + 4$ or **M1** for rise/run
27(b)	$y = -\frac{1}{2}x \times \frac{3}{2}$ oe	**4**	**B1** for (−1, 2) **M1** for the gradient $-\frac{1}{2}$ oe or $\frac{-1}{\textit{their } 2}$ oe **M1** for substituting *their* (−1, 2) into *their* $y = mx + c$ oe

Question	Answer	Marks	Part marks
21	$[y =]$ 0.5x + 2 oe	**3**	**M2** for $[y =]$ 0.5$x + c$ oe $c \neq 2$ or **M1** for $\frac{Rise}{Run}$ and **B1** for $kx + 2$, $k \neq 0$

Question	Answer	Marks	Part marks
4(a)(i)	Correct point plotted	**1**	
4(a)(ii)	Right-angled or scalene	**1**	
4(a)(iii)	8 4	**1**	
4(a)(iv)(a)	0.5 oe	**3**	**M1** for attempt at rise ÷ run
4(a)(iv)(b)	[$y =$] $0.5x$ oe	**1FT**	Correct or **FT** *their* **(iv)(a)**

Question	Answer	Marks	Part marks
7(b)(i)	-0.5 oe	**2**	**M1** for $\frac{\text{rise}}{\text{run}}$
7(b)(ii)	$y = -0.5x + 2$ oe	**1FT**	**FT** *their* gradient
7(b)(iii)	$y = -0.5x + 3$ oe	**2FT**	**B1FT** for y = $y = -0.5x + k$ oe, $k \neq 2$ or **B1** for $y = mx + 3$ oe, $m \neq -0.5$ or 0

Question	Answer	Marks	Part marks
8(a)(i)	5	**1**	
8(a)(ii)	$-\frac{3}{2}$ oe	**1**	
8(b)	$\left(\frac{4}{5}, 0\right)$ oe	**2**	**M1** for $5x - 4 = 0$ soi
8(c)	$y = -0.2x + 11$ final answer	**4**	**M2** for $y = -0.2x + c$ oe (any form) **FT** *their* **(a)** or **B1FT** for grad $= \frac{-1}{\text{their (a)(i)}}$ soi and **M1** for substitution of (10, 9) into *their* equation
8(d)	(2, 6)	**3**	**M1** for elimination of one variable **A1** for $x = 2$ or $y = 6$
8(e)	13	**3**	M2 for (4 + 9) Å~ their 2 ÷ 2 oe or B1 for 9 oe or 4 or –4 seen

Question	Answer	Marks	Part marks
7(a)	$-5x + 6$	**3**	**B2** for $-5x$ (oe) $+ 6$ or $-5x + k$ or **B1** for $kx + 6$ $k \neq 0$ or [gradient =] $\frac{\text{rise}}{\text{run}}$ with correct values or [gradient =] $\pm 5\frac{k}{k}$

