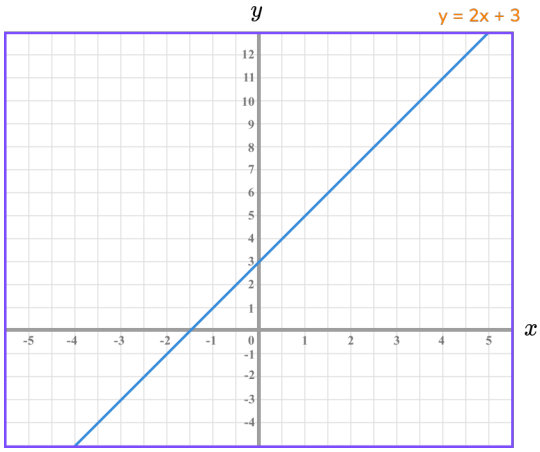
THIRD SPACE LEARNING

GCSE Exam Questions

Straight Line Graphs | Algebra

GCSE Exam Questions: Straight Line Graphs

1) The grid below shows the graph of $y = 2x + 3$.



(a) Draw the graph of $y = 3 - 2x$ on the same grid.

(2)

(b) Use your graph to solve $2x + 3 = 3 - 2x$.

(1)

(c) Beyza says "the lines are perpendicular because the angle between them is 90° ". Explain why Beyza is incorrect.

(2)

(5 marks)

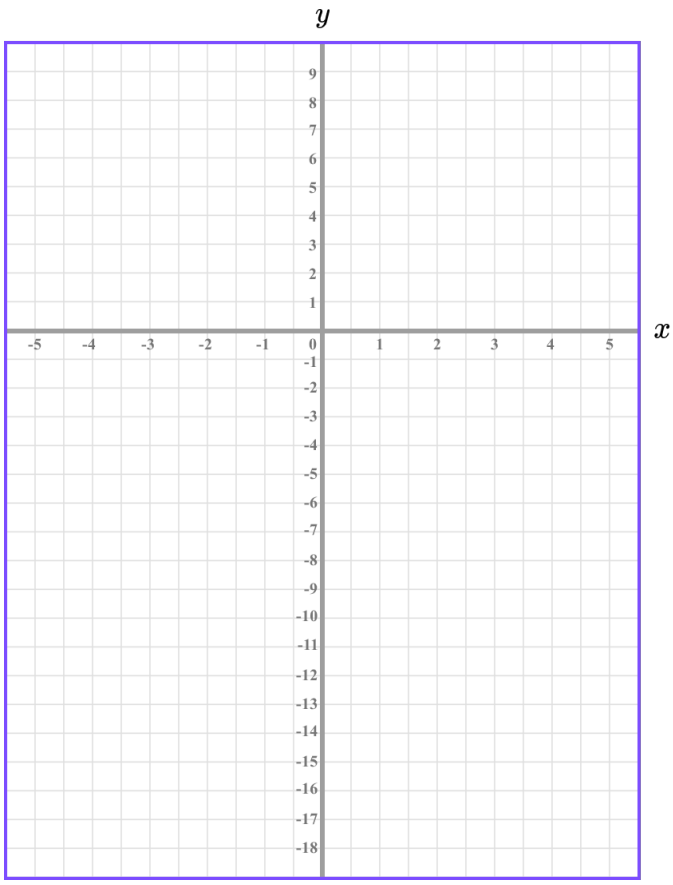
GCSE Exam Questions: Straight Line Graphs

2) **(a)** Complete the table for $y = 5x - 7$ *for* $-2 \leq x \leq 3$.

x	-2	-1	0	1	2	3
y					3	

(3)

(b) Draw the graph of $y = 5x - 7$ using the set of axes provided.



(2)

(5 marks)

GCSE Exam Questions: Straight Line Graphs

3) The line L goes through the points (5, 8) and (7, 16).

Work out the equation of the line.

(3 marks)

4) **(a)** Calculate the gradient of the line perpendicular to the equation

$$x = \frac{3y + 24}{12}$$

(3)

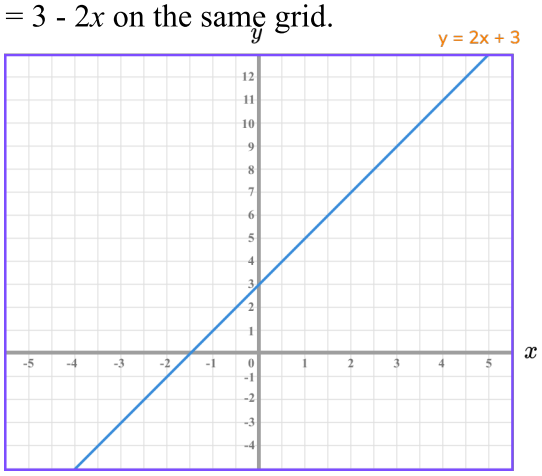
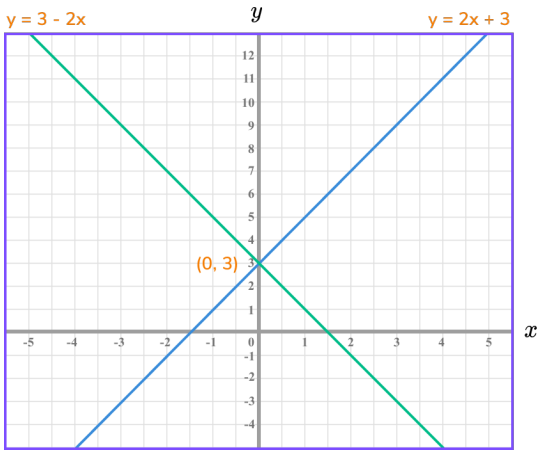
(b) The perpendicular line goes through the point (8, 2).

Find the equation of the perpendicular line.

(2)

(5 marks)

GCSE Exam Questions: Straight Line Graphs Answers

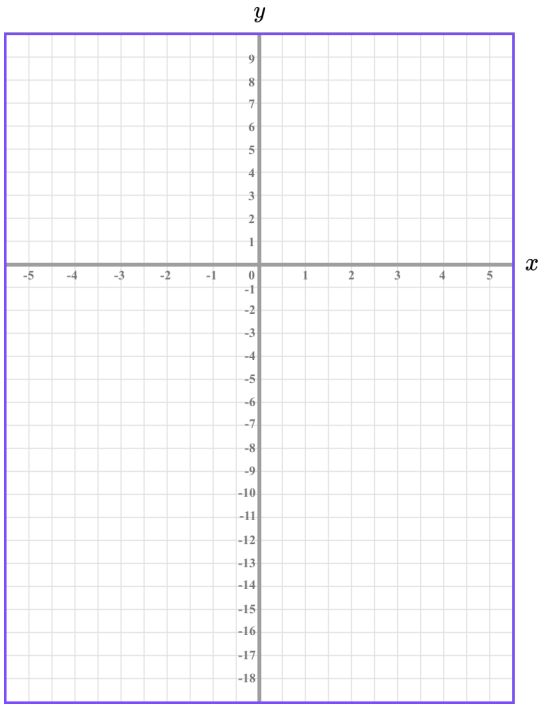
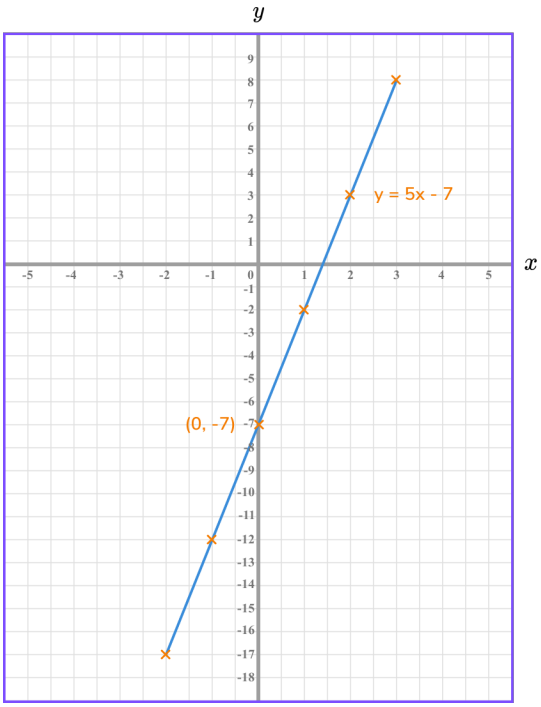
	Question	Answer	Marks
1) (a)	The grid below shows the graph of $y = 2x + 3$. Draw the graph of $y = 3 - 2x$ on the same grid. 	**(a)**  y - intercept (0, 3) or gradient - 2 Correct straight line drawn	 **(1)** **(1)**
(b)	Use your graph to solve $2x + 3 = 3 - 2x$.	**(b)** $x = 0$	**(1)**
(c)	Beyza says "the lines are perpendicular because the angle between them is 90°". Explain why Beyza is incorrect.	**(c)** Product of the gradients is: 2 - 2 = - 4 For two straight lines to be perpendicular, the product of their gradients should equal - 1 **oe**	**(1)** **(1)**
2) (a)	Complete the table for $y = 5x - 7 \; for \; -2 \leq \times \leq 3$.	**(a)**	

x	-2	-1	0	1	2	3
y					3	

x	-2	-1	0	1	2	3
y	-17	-12	-7	-2	3	8

2 correct values **(1)**
4 correct values **(1)**
All values correct **(1)**

GCSE Exam Questions: Straight Line Graphs Answers

	Question	Answer	Marks
(b)	Draw the graph of $y = 5x - 7$ using the set of axes provided. 	**(b)**  At least 5 points plotted accurately Straight line drawn and graph fully correct	**(1)** **(1)**
3)	The line L goes through the points (5, 8) and (7, 16). Work out the equation of the line.	$\frac{16-8}{7-5} = \frac{8}{2} = 4$ Gradient is 4 $y = 4x + c$, goes through (5, 8) $8 = 4 \times 5 + c$ $c = -12$ Equation $y = 4x - 12$	**(1)** **(1)** **(1)**

GCSE Exam Questions: Straight Line Graphs Answers

	Question	Answer	Marks
4) (a)	Calculate the gradient of the line perpendicular to the equation $x = \frac{3y + 24}{12}$	**(a)** Rearranging into the form $y = mx + c$ $x = \frac{3y + 24}{12}$ $\times 12 \quad \times 12$ $12x = 3y + 24$ $-24 \quad -24$ $12x - 24 = 3y$ $3y = 12x - 24$ $\div 3 \quad \div 3$ $y = 4x - 8$ $m = 4$ Perpendicular has a gradient of $-\frac{1}{4}$	**(1)** **(1)** **(1)**
(b)	The perpendicular line goes through the point (8,2). Find the equation of the perpendicular line.	**(b)** $y = -\frac{1}{4}x + c$ goes through (8, 2) $2 = -\frac{1}{4} \times 8 + c$ $c = 4$ $y = -\frac{1}{4}x + 4$	**(1)** **(1)**

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