

Linear graphs

Year 9 | Key Stage 3 | 13 questions, 45 marks

KS3 Maths topic practice



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Name: _____ **Date:** _____ **Score:** _____ / 45

1

A straight line has equation $y = 3x - 2$

a. Write down the gradient of the line.

b. Write down the coordinates of the point where the line crosses the y -axis.

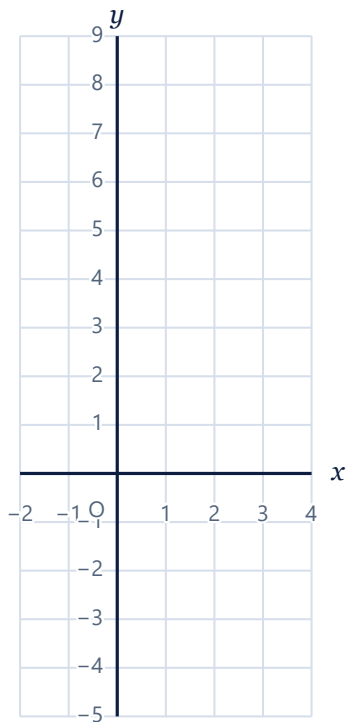
(2 marks)

Answer _____

- 2 Here is a table of values for $y = 3x - 1$

x	-1	0	1	2	3
y		-1			8

- a. Complete the table.
b. On the grid, draw the graph of $y = 3x - 1$ for values of x from -1 to 3



(4 marks)

Answer _____

- 3 A straight line passes through the points A (2, 5) and B (6, 17).

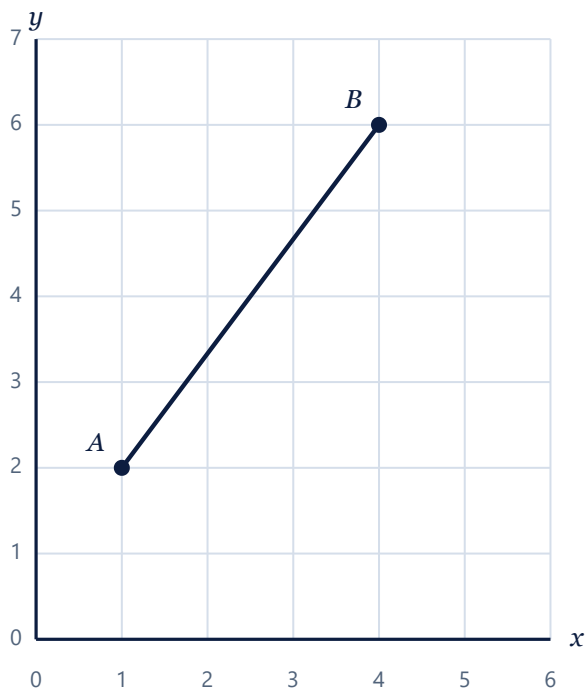
Work out the gradient of the line.

(2 marks)

Answer _____

4 The line segment AB is drawn on the grid. A is the point (1, 2) and B is the point (4, 6).

- Work out the gradient of AB.
- Work out the length of AB.



(4 marks)

Answer _____

- 5**
- P is the point (−2, 5) and Q is the point (6, −1). Find the coordinates of the midpoint of PQ.
 - M (3, 4) is the midpoint of the line segment AB. A is the point (1, −2). Find the coordinates of B.

(4 marks)

Answer _____

6 Here are the equations of two straight lines.

Line P: $y = 4x - 3$

Line Q: $y = 2x + 5$

- Which line is steeper? Give a reason.
- Which line crosses the y -axis at the higher point? Give a reason.
- The two lines cross at one point. Work out the coordinates of this point.

(4 marks)

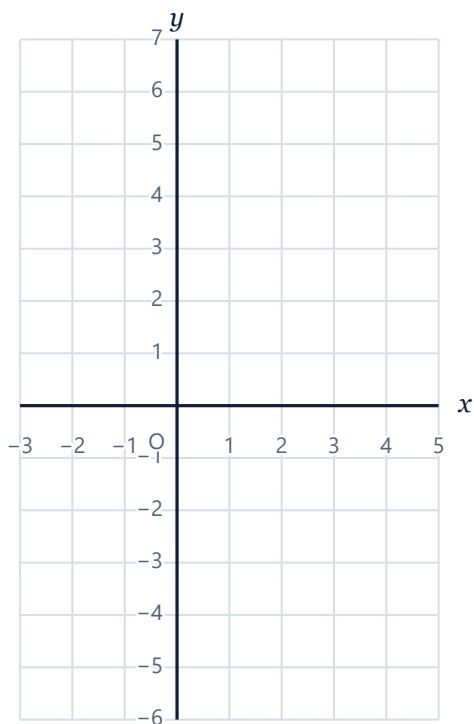
Answer _____

7 On the axes, sketch the graphs of

a. $y = 2x - 4$

b. $y = 6 - 2x$

Mark the coordinates of the points where each line crosses the axes.



(4 marks)

Answer _____

- 8 A straight line has gradient -2 and passes through the point (3, 1).

Find the equation of the line.

(3 marks)

Answer _____

- 9 The straight line L has equation $y = 5x - 3$

a. Write down the gradient of L.

b. Find the equation of the straight line that is parallel to L and passes through the point (2, 11).

(4 marks)

Answer _____

- 10 Find the equation of the straight line that is perpendicular to $y = 2x - 3$ and passes through the point (4, 1).

(3 marks)

Answer _____

EXTENSION QUESTIONS

- 11 Write each equation in the form $y = mx + c$. Then write down the gradient of the line.

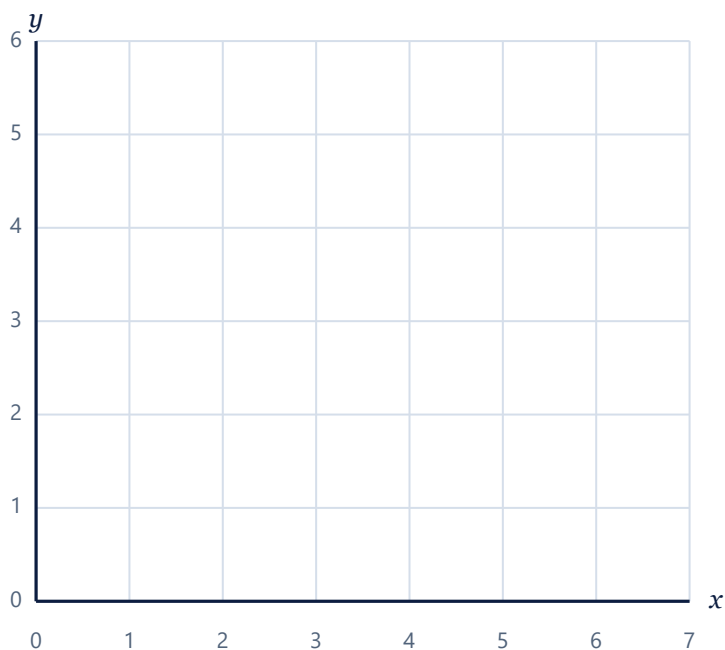
a. $3x + 2y = 12$

b. $4y - 8x = 20$

(4 marks)

Answer _____

- 12** On the grid, draw the graph of $2x + 3y = 12$ for values of x from 0 to 6



(3 marks)

Answer _____

- 13** The straight line L has equation $3x + 4y = 8$
Find the equation of the straight line that is parallel to L and passes through the point (8, 1).

(4 marks)

Answer _____

End of questions | Total 45 marks