

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Algebra

Interpreting equations of straight-line graphs

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

- In all calculations, show clearly how you work out your answer

For question 1 you must **NOT** use a calculator.



Question 1 is **higher** tier only

Q1.

Which of these is the equation of a straight line?

$$y = 6x^2$$

$$y = x - 6$$

$$y = x^2 + 6$$

$$y = \frac{6}{x}$$

(Total 1 mark)

For the rest of the questions, you **may** use a calculator.



Q2.

The equation of a line is $y = 3x - 6$

Which of these is the coordinates of the y-intercept?

$$(0, -6)$$

$$(-6, 0)$$

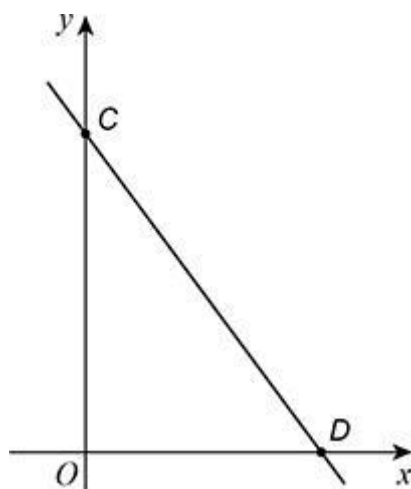
$$(0, 3)$$

$$(3, 0)$$

(Total 1 mark)

Q3.

Here is a sketch of the graph $y = -2x + 6$



Copy and complete the coordinates of C and D.

C (0 , _____) D (_____ , 0)

(Total 2 marks)

Q4.

Write down the coordinates of the y-intercept of the line $y = 3x + 8$

(Total 1 mark)

Q5.

Work out the gradient of the line $2y = 10x$

(Total 1 mark)

Q6.

The equation of a straight line is $2y = 6x + 8$

Which of these is the gradient of the line?

6

8

3

4

(Total 1 mark)

Q7.

A line has the equation $y = x + 3$

(a) Write down the coordinates of the point where the line intersects the y -axis.

(1)

(b) Write down the coordinates of the point where the line intersects the x -axis.

(1)

(Total 2 marks)

Questions 8 to 12 are **higher** tier only

Q8.

The line with equation $y = 2x + 7$ intersects the y -axis at A .

Copy and complete the coordinates of A .

$A (0, \underline{\hspace{2cm}})$

(Total 1 mark)

Q9.

The equation of a straight line is $2y = 3x + 5$

Which of these is the gradient of the line?

$\frac{2}{3}$

$\frac{3}{2}$

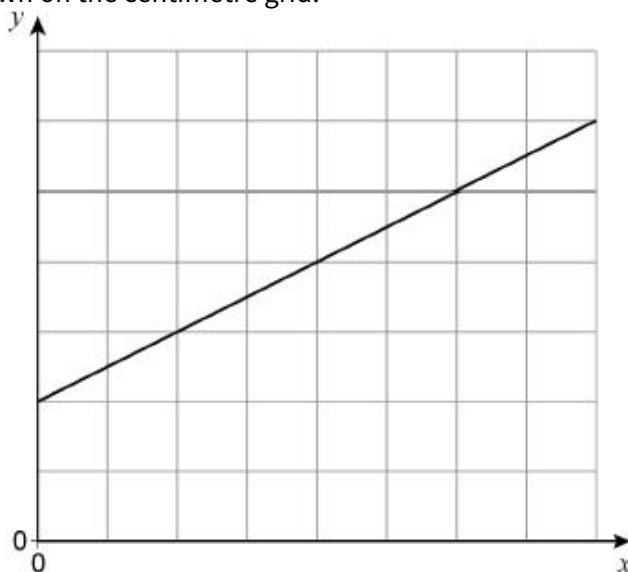
3

5

(Total 1 mark)

Q10.

A straight line is drawn on the centimetre grid.



Fay assumes that the scale is 1 cm represents 1 unit.

(a) Use her assumption to work out the gradient of the line.

(1)

(b) In fact, the scale is 1 cm represents 2 units.

Which statement is correct?

Copy **one** statement.

☐

The answer to part (a) is too big

☐

The answer to part (a) stays the same

☐

The answer to part (a) is too small

(1)

(Total 2 marks)

Q11.

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

Which of these is the coordinates of the intercept of the line with the y-axis?

$(0, 1)$

$(0, -1)$

$\left(0, \frac{2}{3}\right)$

$\left(0, -\frac{2}{3}\right)$

(Total 1 mark)

Q12.

Line A

has equation $y = ax - 1$

passes through the point $(7, 13)$

Line B has equation $5y - 3x = 4$

Show that line A has a greater gradient than line B.

(Total 3 marks)