

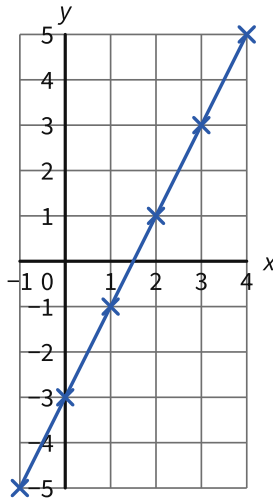
Graphs

ANSWERS

Ruler | 30 minutes | Total marks: 26

Name Class

1



On the grid, draw the graph of $y = 2x - 3$ for values of x from -1 to 4

Two correct points (1) All points (1) Straight line (1) [3 marks]

2

A is the point $(2, 5)$ and B is the point $(8, -1)$

Work out the coordinates of the midpoint of AB.

$$\frac{2+8}{2} \text{ and } \frac{5+(-1)}{2} \quad (1)$$

Answer $(5, 2)$ (1) [2 marks]

3

A straight line passes through the points $(1, 4)$ and $(5, 12)$

(a) Work out the gradient of the line.

$$\frac{12-4}{5-1} \quad (1)$$

Answer 2 (1) [2 marks]

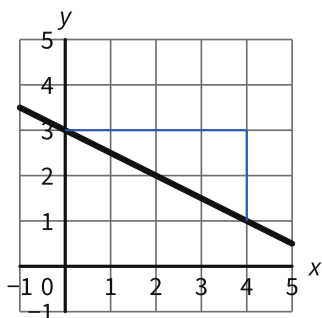
(b) Work out the equation of the line.

$$4 = 2 \times 1 + c \quad (1)$$

Answer $y = 2x + 2$ (1) [2 marks]

4

The grid shows a straight line.



Work out the equation of the line.

$$\text{gradient} = \frac{-2}{4} = -\frac{1}{2} \quad (1)$$

crosses the y-axis at 3 (1)

Answer $y = -\frac{1}{2}x + 3$ (1)

[3 marks]

5

A straight line is parallel to $y = 3x - 1$ and passes through the point (2, 10)

Work out the equation of the line.

$$10 = 3 \times 2 + c \quad (1)$$

Answer $y = 3x + 4$ (1)

[2 marks]

6

(a) Write down the gradient of a line that is perpendicular to $y = 4x + 1$

Answer $-\frac{1}{4}$ (1)

[1 mark]

(b) A straight line is perpendicular to $y = 2x + 5$ and passes through the point (6, 2)

Work out the equation of the line.

$$\text{gradient} = -\frac{1}{2} \quad (1)$$

$$2 = -\frac{1}{2} \times 6 + c, \text{ so } c = 5 \quad (1)$$

Answer $y = -\frac{1}{2}x + 5$ (1)

[3 marks]

7

Are the lines $2y = 6x + 1$ and $y = 3x - 4$ parallel?

You **must** show your working.

$$y = 3x + \frac{1}{2} \quad (1)$$

Both have gradient 3, so yes (1)

[2 marks]

8

The cost, £ C , of using n units of electricity is given by $C = 0.15n + 12$

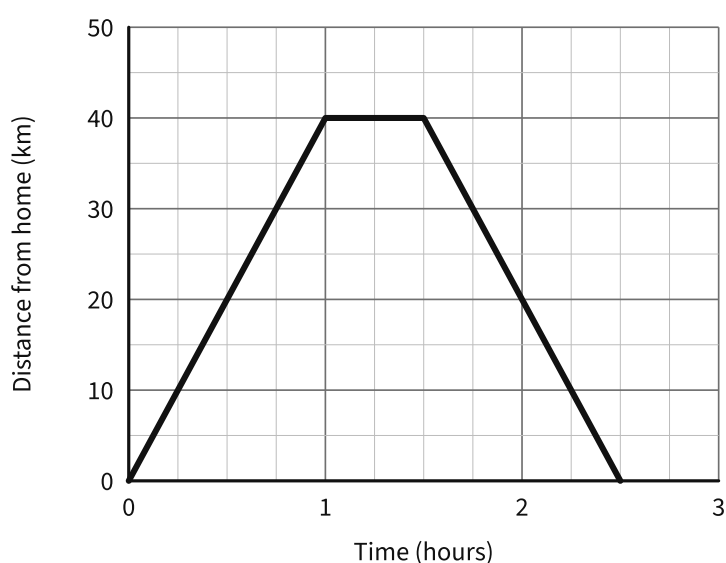
What does the 0.15 represent?

The cost of each unit, 15p (1)

[1 mark]

9

The graph shows Sam's cycle ride from home and back.



(a) Work out Sam's speed in the first hour.

Answer 40 (1) km/h [1 mark]

(b) Describe what Sam is doing between 1 hour and 1.5 hours.

Answer not moving (1) [1 mark]

(c) Work out Sam's average speed for the whole journey.

80 km in 2.5 hours (1)

Answer 32 (1) km/h [2 marks]

10

$ABCD$ is a rectangle.

A is $(1, 1)$, B is $(5, 1)$ and C is $(5, 4)$

Write down the coordinates of D .

Answer $(1, 4)$ (1)

[1 mark]

Question	Topic	RAG
1	I can draw a straight line graph from its equation	
2	I can find the midpoint of a line	
3	I can find the gradient and equation of a line through two points	
4	I can find the equation of a line from its graph	
5	I can find the equation of a parallel line	
6	I can find the equation of a perpendicular line	
7	I can decide whether two lines are parallel	
8	I can interpret a gradient as a rate of change	
9	I can interpret a distance time graph	
10	I can use coordinates to complete a shape	