

Graphs

ANSWERS

Ruler | 30 minutes | Total marks: 29

Name Class

1 A straight line has the equation $y = 5x + 3$

(a) Write down the gradient of the line.

Answer 5 (1) [1 mark]

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

Answer (0, 3) (1) [1 mark]

2 Does the point (4, 9) lie on the line $y = 2x + 1$?

Show how you decide.

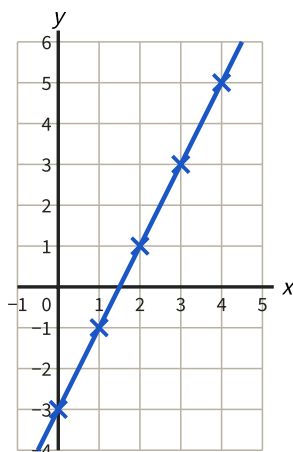
Answer $2 \times 4 + 1 = 9$, so yes (1) [1 mark]

3 (a) Complete the table of values for $y = 2x - 3$

x	0	1	2	3	4
y	-3 (1)	-1	1	3	5 (1)

[2 marks]

(b)

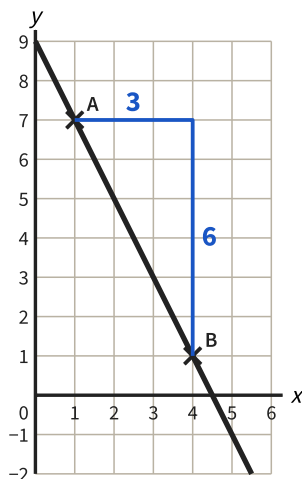


On the grid, draw the graph of $y = 2x - 3$ for values of x from 0 to 4

[2 marks]

Points plotted (1)
Straight line through them (1)

4

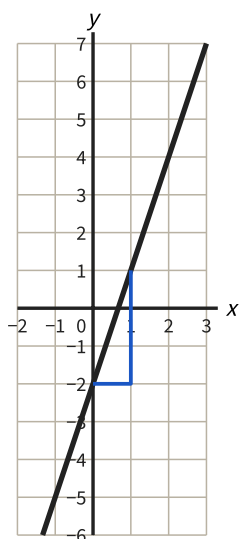


The line goes through the points A and B.
Work out the gradient of the line.

Answer -2 (1) [2 marks]

Step triangle: 3 across, 6 down (1)

5



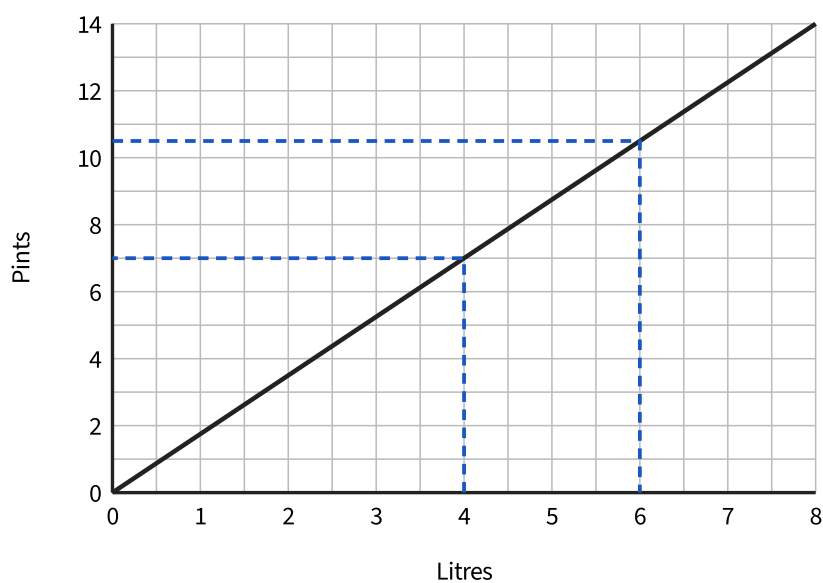
A straight line is drawn on the grid.
Work out the equation of the line.
Give your answer in the form $y = mx + c$

Answer $y = 3x - 2$ (1) [2 marks]

Gradient 3 or crosses at -2 (1)

6

The graph can be used to change between litres and pints.



(a) Change 4 litres into pints.

Answer 7 (1) pints [1 mark]

(b) Change 10.5 pints into litres.

Answer 6 (1) litres [1 mark]

(c) A fish tank holds 20 litres of water.
How many pints is this?

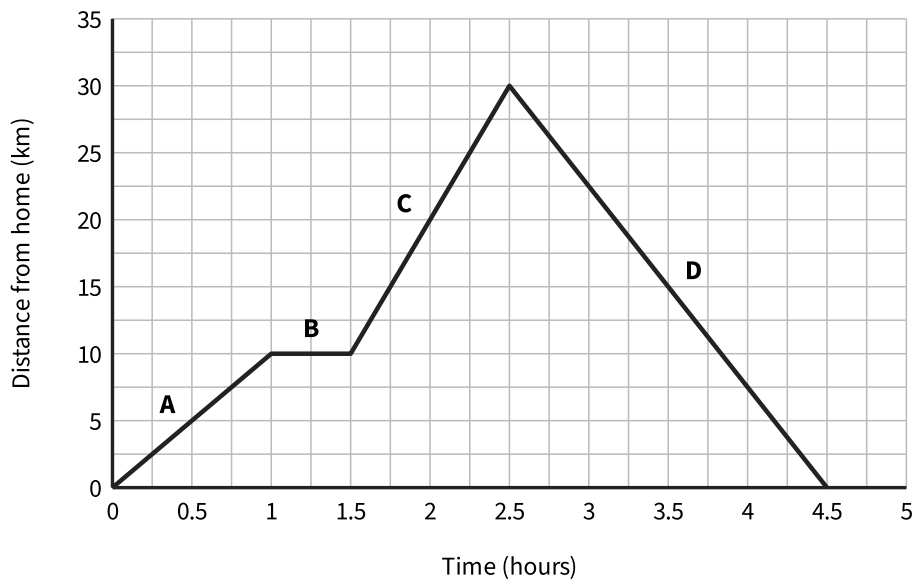
4 litres = 7 pints, so 7×5 (1)

Answer 35 (1) pints [2 marks]

7

Priya cycles from home to a lake. She stops at a café on the way, then cycles home.

The graph shows her journey. It has four parts, A, B, C and D.



(a) For how long did Priya stop at the café?

Answer 30 (1) minutes [1 mark]

(b) Work out Priya's speed in part C.

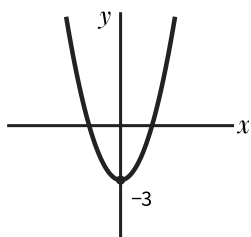
Answer 20 (1) km/h [1 mark]

(c) Work out Priya's average speed on the way home, in part D.

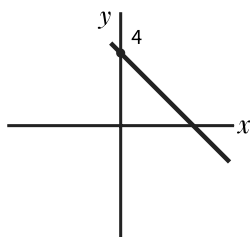
30 km in 2 hours, $30 \div 2$ (1)

Answer 15 (1) km/h [2 marks]

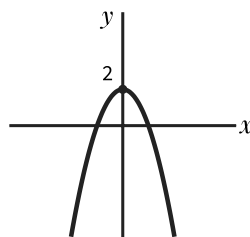
8 Here are sketches of four graphs.



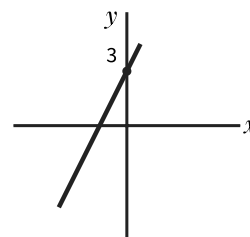
A



B



C



D

Write the letter of the graph that matches each equation. One graph is not used.

Equation	$y = 2x + 3$	$y = x^2 - 3$	$y = -x + 4$
Graph	D (1)	A (1)	B (1)

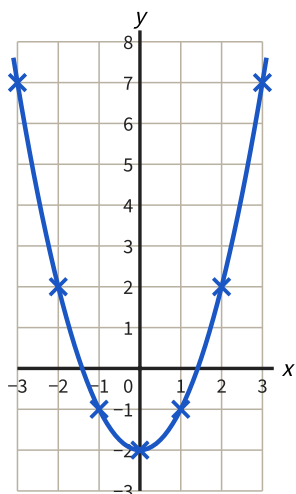
[3 marks]

9 (a) Complete the table of values for $y = x^2 - 2$

x	-3	-2	-1	0	1	2	3
y	7	2 (1)	-1	-2	-1 (1)	2	7

[2 marks]

(b)



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

[2 marks]

Points plotted (1)
Smooth curve (1)

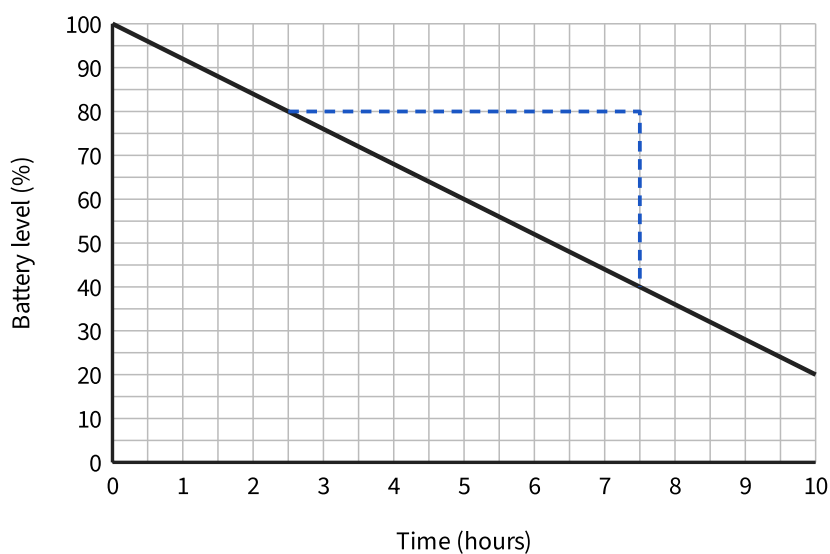
(c) Write down the coordinates of the lowest point of the graph.

Answer (0, -2) (1)

[1 mark]

10

The graph shows the battery level of a phone as it is used.



Work out the rate at which the battery level goes down.

Give the units of your answer.

$$40 \div 5 = 8 \text{ (1)}$$

Answer 8% per hour (1)

[2 marks]

Question	Topic	RAG
1	I can read the gradient and intercept from $y = mx + c$	
2	I can check whether a point is on a line	
3	I can plot a straight line graph from a table of values	
4	I can find the gradient of a line from its graph	
5	I can find the equation of a line from its graph	
6	I can use a conversion graph, including past the end	
7	I can read and work out speeds from a distance-time graph	
8	I can recognise linear and quadratic graphs	
9	I can plot a quadratic graph and find its lowest point	
10	I can find a rate from a real life graph	