

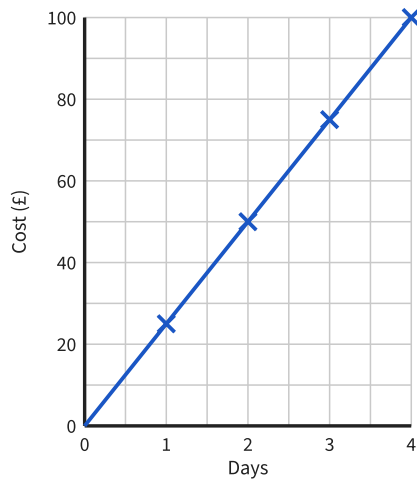
Direct Proportion Graphs

1 The cost of hiring a van is directly proportional to the number of days. **2 days costs £50.**

(a) Complete the table.

Days	1	2	3	4
Cost (£)	25	50	75	100

(b) Plot the points and draw the graph.



(c) Use your graph to find the cost of hiring the van for 3.5 days.

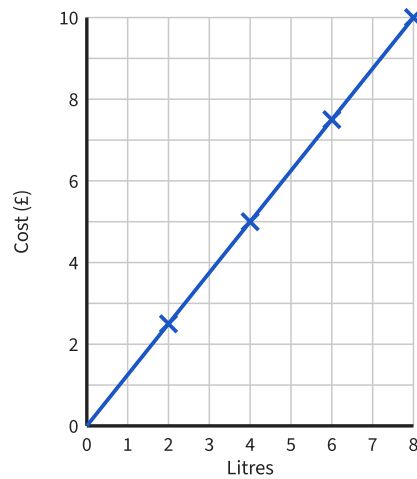
Answer £87.50

2 The cost of petrol is directly proportional to the number of litres. **4 litres costs £5.**

(a) Complete the table.

Litres	2	4	6	8
Cost (£)	2.50	5	7.50	10

(b) Plot the points and draw the graph.



(c) Use your graph to find how many litres you get for £8.

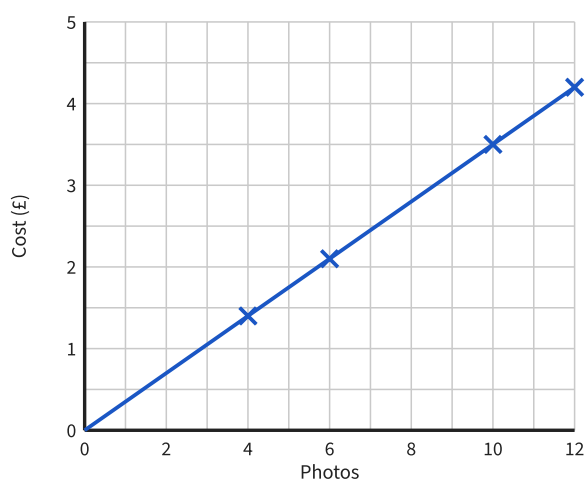
Answer 6.4 litres

3 The cost of printing photos is directly proportional to the number of photos. **4 photos cost £1.40.**

(a) Complete the table.

Photos	4	6	10	12
Cost (£)	1.40	2.10	3.50	4.20

(b) Plot the points and draw the graph.



(c) Use your graph to find the cost of 8 photos.

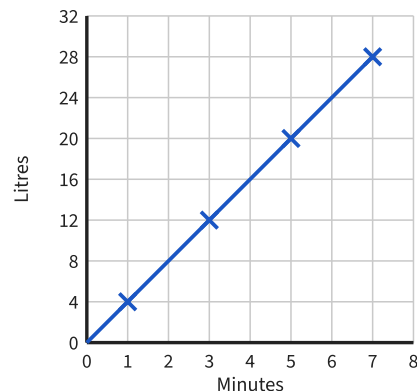
Answer £2.80

4 The amount of water in a tank is directly proportional to the time the tap has run. **After 3 minutes there are 12 litres.**

(a) Complete the table.

Minutes	1	3	5	7
Litres	4	12	20	28

(b) Plot the points and draw the graph.



(c) Use your graph to find how long it takes to reach 24 litres.

Answer 6 minutes

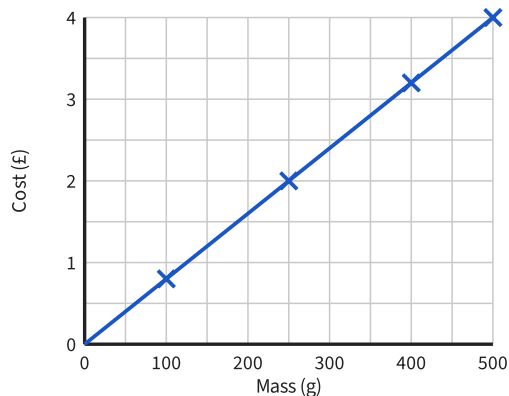
5

The cost of pick-and-mix is directly proportional to its mass. **250 g costs £2.**

(a) Complete the table.

Mass (g)	100	250	400	500
Cost (£)	0.80	2	3.20	4

(b) Plot the points and draw the graph.



(c) Use your graph to find how much you get for £3.

Answer 375 g

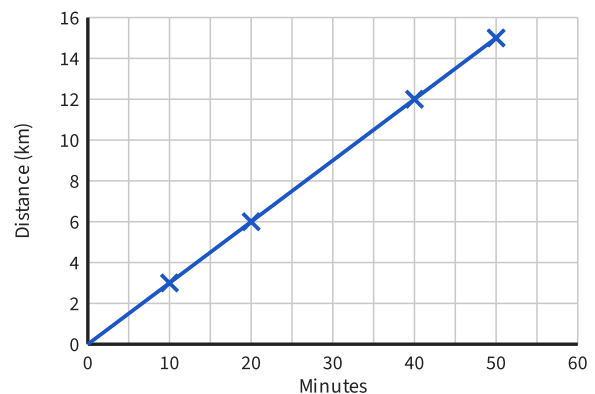
6

A cyclist rides at a steady speed. **In 20 minutes she travels 6 km.**

(a) Complete the table.

Minutes	10	20	40	50
Distance (km)	3	6	12	15

(b) Plot the points and draw the graph.



(c) Use your graph to find how far she travels in 35 minutes.

Answer 10.5 km

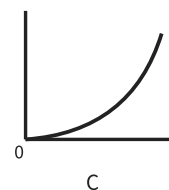
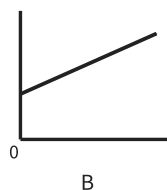
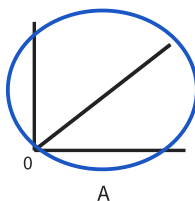
7

(a) Look at your six graphs. Write down **two** things they all have in common.

One They are all straight lines.

Two They all pass through the origin (0, 0).

(b) Circle the graph that shows direct proportion.



A. B doesn't go through the origin. C isn't a straight line.

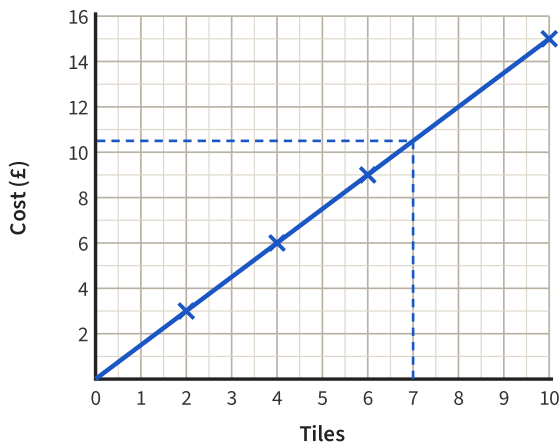
8

The cost of tiles is directly proportional to the number of tiles. 6 tiles cost £9.

(a) Complete the table.

Tiles	2	4	6	10
Cost (£)	3	6	9	15

(b) Plot the points and draw the graph.



(c) Use your graph to find the cost of 7 tiles.

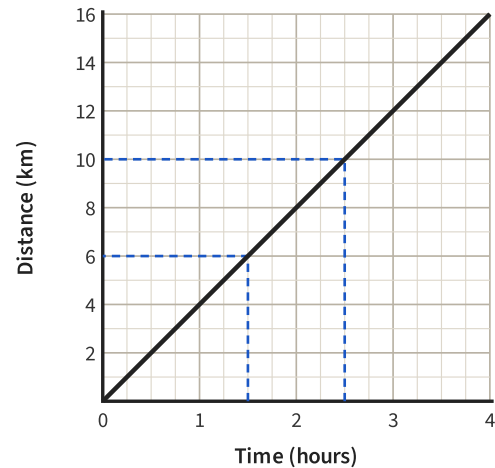
Answer £10.50 (accept £10.25 to £10.75)

9

Nadia walks at a steady speed. The graph shows how far she walks.

(a) How far does she walk in $2\frac{1}{2}$ hours?

(b) How long does she take to walk 6 km?



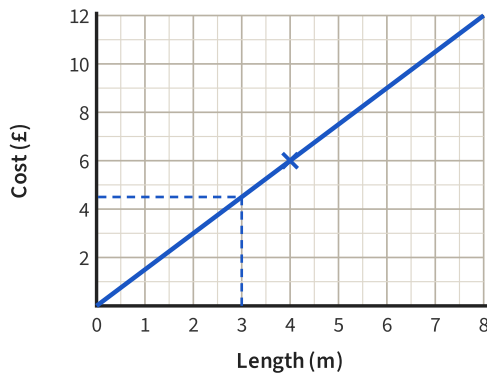
(a) 10 km (accept 9.8 to 10.2)
 (b) 1½ hours (accept 1 h 25 min to 1 h 35 min)

10

The cost of ribbon is directly proportional to its length. 4 m of ribbon costs £6.

(a) Draw the graph of cost against length.

(b) Use your graph to find the cost of 3 m.

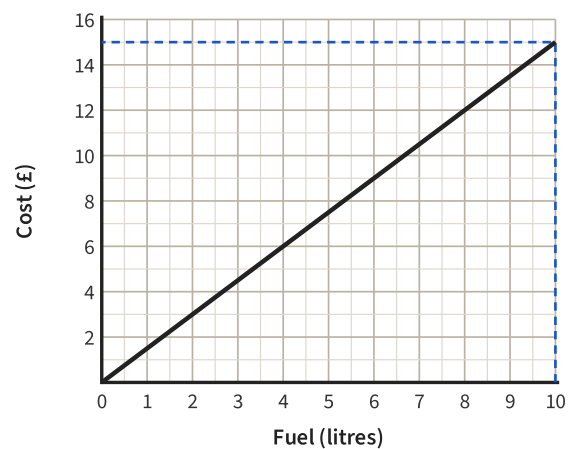


(b) £4.50 (accept £4.25 to £4.75)

11

The graph shows the cost of fuel. It only goes up to 10 litres.

Use the graph to find the cost of 30 litres.



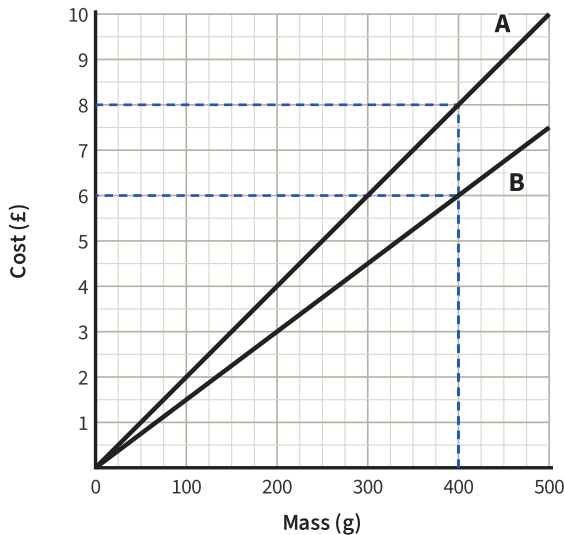
10 litres cost £15, and 30 litres is 3 × 10 litres
 Answer 3 × £15 = £45 (accept £44 to £46)

12

The graph shows the cost of coffee beans at shop A and at shop B.

(a) How much more does 400 g cost at shop A than at shop B?

(b) Which shop is better value? Explain.



$$£8 - £6 = £2 \text{ (accept £1.80 to £2.20)}$$

(a)

(b) B: the same mass costs less at B

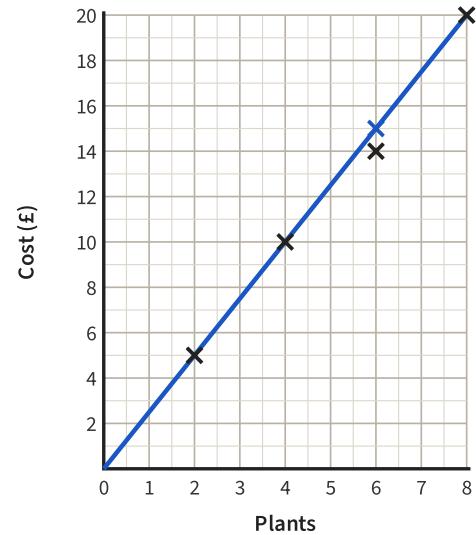
(its line is less steep).

13

Priya's table shows the cost of plants. Cost is directly proportional to the number of plants.

Plants	2	4	6	8
Cost (£)	5	10	14	20

She plots her points. One value in her table is wrong. Which one? What should it be?



6 plants: it should be £15, not £14.

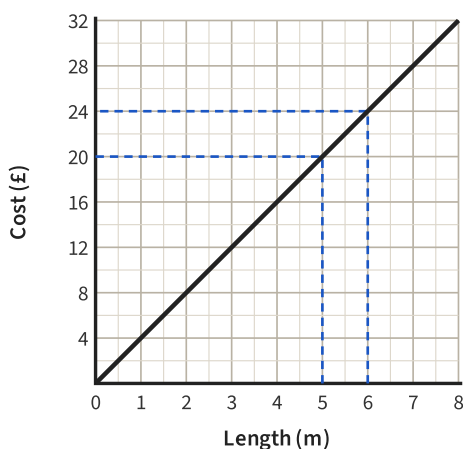
The other points lie on a line through (0, 0).

14

The graph shows the cost of fabric. Kai has £20.

(a) Can Kai buy 6 m of fabric? Use the graph to explain.

(b) What is the greatest whole number of metres he can buy?



No: 6 m costs £24, more than £20

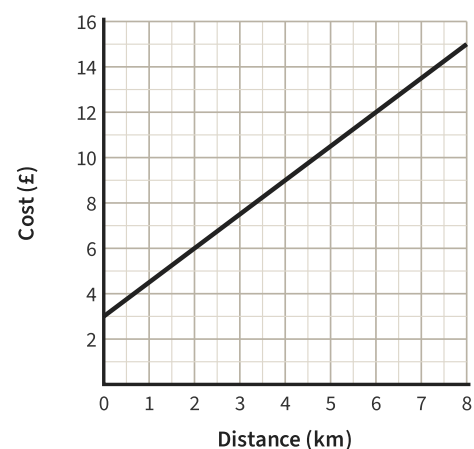
(a)

5 m

(b)

15

The graph shows the cost of a taxi ride. Ben says the cost is directly proportional to the distance, because the graph is a straight line. Is Ben right? Explain.



No. The line does not go through (0, 0):

a ride of 0 km would still cost £3.