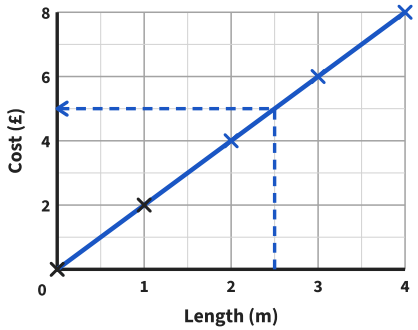
Direct and inverse proportion graphs

ANSWERS

1

Rope costs £2 a metre. Complete the table, plot the points and draw the graph.

Length (m)	0	1	2	3	4
Cost (£)	0	2	4	6	8

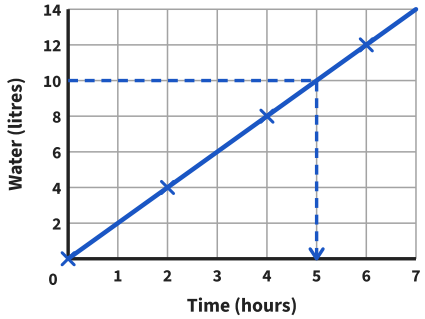


Cost of 2.5 m = £ 5

2

A tap leaks 2 litres of water every hour. Complete the table and draw the graph.

Time (hours)	0	2	4	6
Water (litres)	0	4	8	12

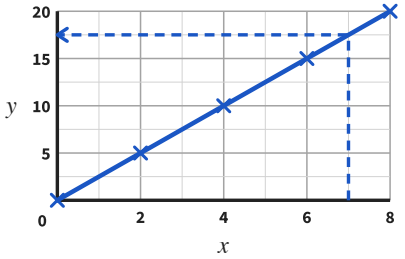


Time to leak 10 litres = 5 hours

3

y is directly proportional to x.
Complete the table and draw the graph.

x	0	2	4	6	8
y	0	5	10	15	20



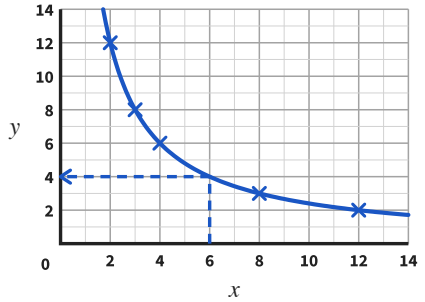
1 square up = 2.5

y when $x = 7$: 17.5

4 Notice the change!

y is inversely proportional to x.
Complete the table and draw the graph.

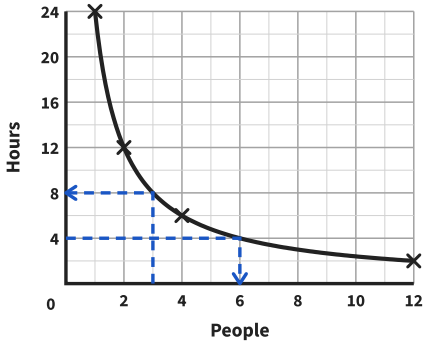
x	2	3	4	8	12
y	12	8	6	3	2



y when $x = 6$: 4

5

The graph shows how long it takes to pack food parcels with different numbers of people.

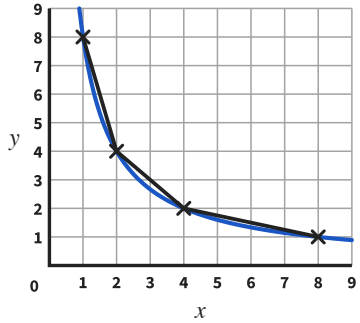


Hours for 3 people = 8

People to finish in 4 hours = 6

6

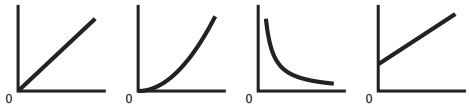
y is inversely proportional to x.
Mia plotted the points and joined them.
What has she done wrong?



joined them with a ruler, dot to dot
it should be a smooth curve

7

Each sketch shows y against x.
Which shows direct proportion?
Which shows inverse proportion?



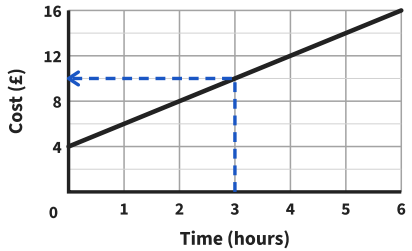
A: direct
B: neither
C: inverse
D: neither

Direct proportion: A

Inverse proportion: C

8

The graph shows the cost of hiring a canoe. Sam says the cost is directly proportional to the time.
Is he right? Explain.



No. It is a straight line, but it does not go through (0, 0)

Cost for 3 hours = £ 10

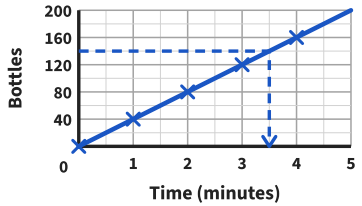
Direct and inverse proportion graphs *further practice*

ANSWERS

9

A machine fills 40 bottles a minute. Complete the table and draw the graph. How long does it take to fill 140 bottles?

Minutes	0	1	2	3	4
Bottles	0	40	80	120	160



across from 140, then down

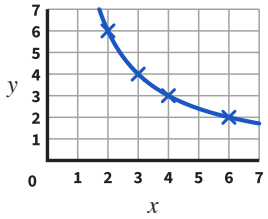
3.5 minutes

Answer

10

y is inversely proportional to x. Complete the table and draw the graph. Use it to estimate y when $x = 5$.

x	2	3	4	6
y	6	4	3	2



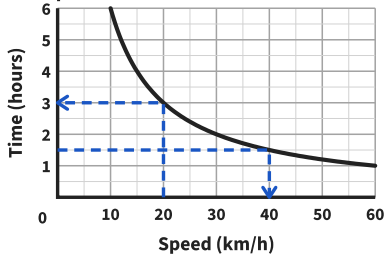
a smooth curve: between 2 and 3

about 2.4

$y \approx$

11

The graph shows the time a 60 km journey takes at different speeds. How long does it take at 20 km/h? What speed makes it take 1.5 hours?



up from 20: 3 hours

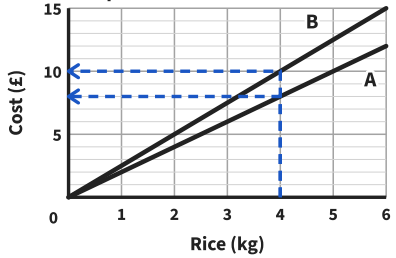
across from 1.5: 40 km/h

3 hours, 40 km/h

Answer

12

Two shops sell rice loose. The graph shows the cost at shop A and shop B. How much more does 4 kg cost at shop B?



A: £8, B: £10

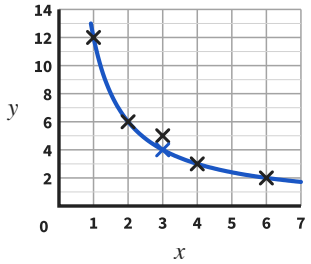
10 − 8 = 2

£2

Answer

13

Leo plotted points where y is inversely proportional to x. One point is wrong. Which one? Where should it be?



x × y = 12 for the others

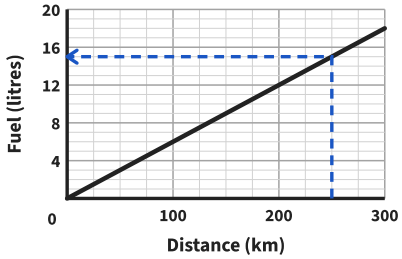
12 ÷ 3 = 4

(3, 5) should be (3, 4)

Answer

14

The graph shows the fuel a van uses. Fuel costs £1.50 a litre. How much does the fuel for a 250 km trip cost?



250 km: 15 litres

15 × £1.50 = £22.50

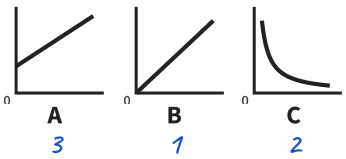
£22.50

Answer

15

Match each situation to its sketch.

1. the cost of carrots against their mass
2. the time to dig a vegetable patch against the number of people
3. a taxi fare of £3 plus £2 a mile against the miles



3 1 2

straight through (0, 0): direct

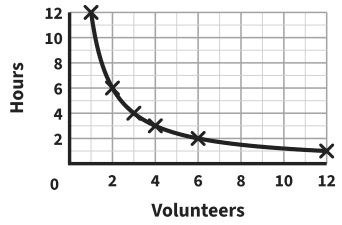
a falling curve: inverse

1 B, 2 C, 3 A

Answer

16

One volunteer takes 12 hours to tidy a park. Explain why the graph of hours against the number of volunteers never touches the horizontal axis.



hours = 12 ÷ volunteers

that is never 0, however many there are

the time is never 0

Answer