

Inverse Proportion Graphs

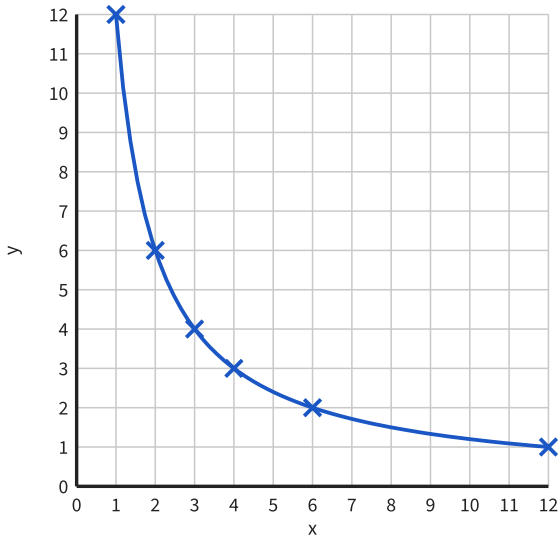
1

y is inversely proportional to x. When $x = 1$, $y = 12$.

(a) Complete the table.

x	1	2	3	4	6	12
y	12	6	4	3	2	1

(b) Plot the points and draw the graph.



(c) Use your graph to find y when $x = 8$.

Answer 1.5

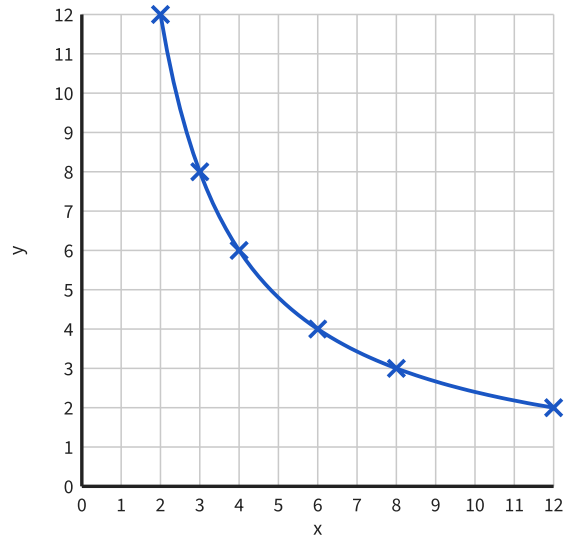
2

y is inversely proportional to x. When $x = 2$, $y = 12$.

(a) Complete the table.

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

(b) Plot the points and draw the graph.



(c) Use your graph to find y when $x = 5$.

Answer 4.8 (about 5 from the graph)

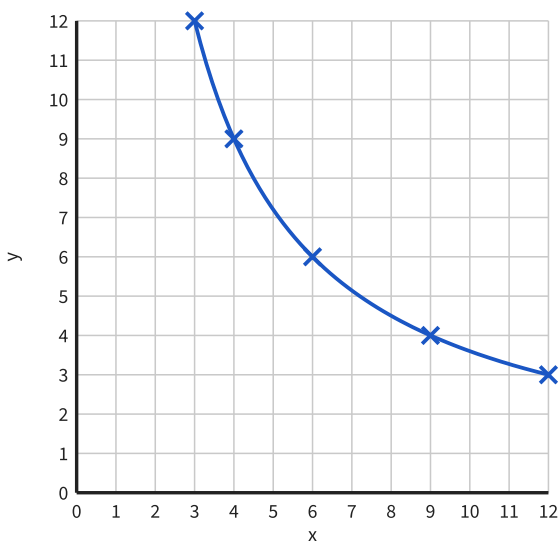
3

y is inversely proportional to x. When $x = 3$, $y = 12$.

(a) Complete the table.

x	3	4	6	9	12
y	12	9	6	4	3

(b) Plot the points and draw the graph.



(c) Use your graph to find x when $y = 5$.

Answer 7.2 (about 7 from the graph)

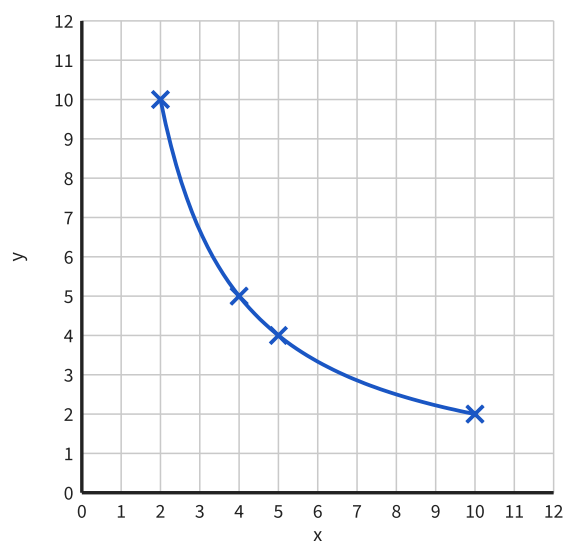
4

y is inversely proportional to x. When $x = 2$, $y = 10$.

(a) Complete the table.

x	2	4	5	10
y	10	5	4	2

(b) Plot the points and draw the graph.



(c) Use your graph to find y when $x = 8$.

Answer 2.5

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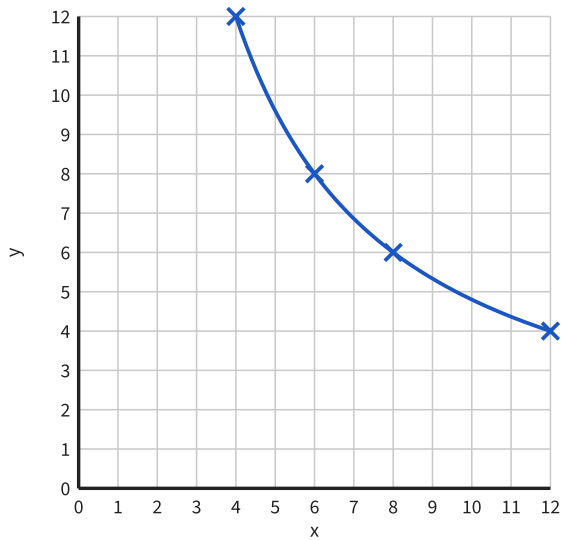
5

y is inversely proportional to x. When $x = 4$, $y = 12$.

(a) Complete the table.

x	4	6	8	12
y	12	8	6	4

(b) Plot the points and draw the graph.



(c) Use your graph to find x when $y = 5$.

Answer 9.6 (about 10 from the graph)

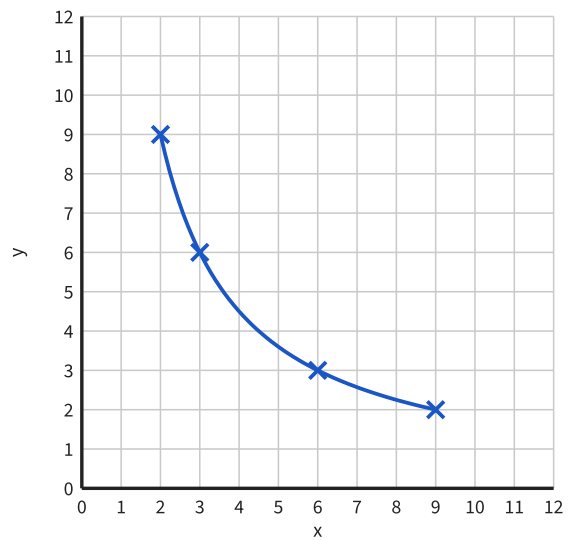
6

y is inversely proportional to x. When $x = 2$, $y = 9$.

(a) Complete the table.

x	2	3	6	9
y	9	6	3	2

(b) Plot the points and draw the graph.



(c) Use your graph to find y when $x = 4$.

Answer 4.5

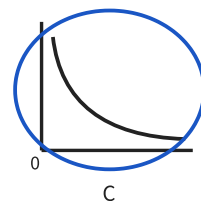
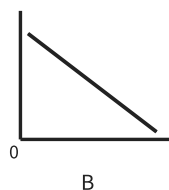
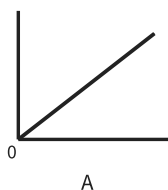
7

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

One They are all curves that get flatter as x grows.

Two None of them touches either axis, and $x \times y$ is the same all along each one.

(b) Circle the graph that shows inverse proportion.



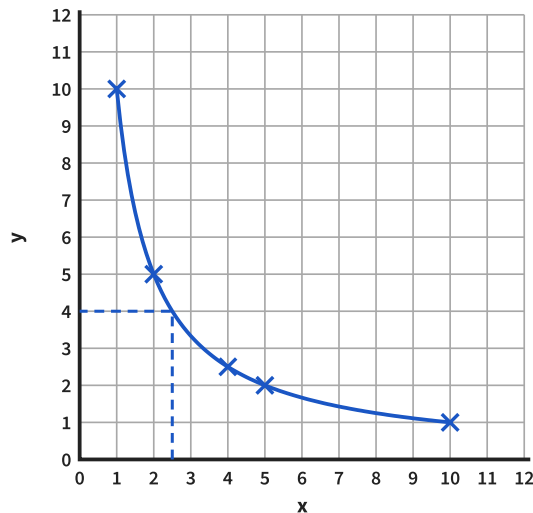
C. A is direct proportion; B is a straight line going down, not a curve.

8

y is inversely proportional to x . When $x = 2$, $y = 5$.

- (a) Complete the table. (b) Plot the points and draw the graph.
(c) Use your graph to estimate x when $y = 4$.

x	1	2	4	5	10
y	10	5	2.5	2	1



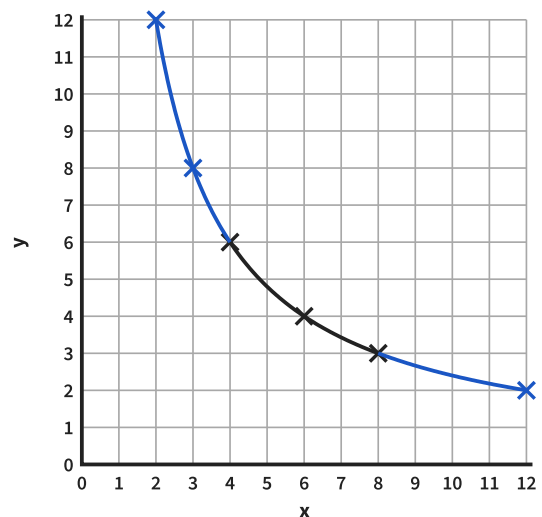
(c) about 2.5 (accept 2.3 to 2.7)

9

The graph shows part of a curve where y is inversely proportional to x .

- (a) Use a point on the curve to work out $x \times y$.
(b) Complete the table. (c) Complete the curve from $x = 2$ to $x = 12$.

x	2	3	12
y	12	8	2



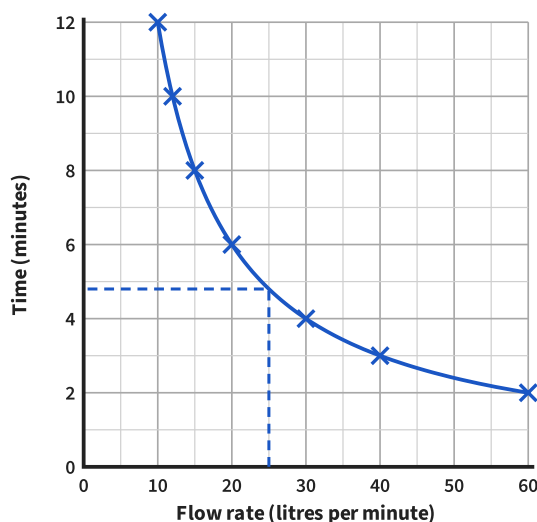
(a) $x \times y = 24$

10

A tank holds 120 litres of water. The time to fill it is inversely proportional to the flow rate. At 20 litres per minute it takes 6 minutes.

- (a) Complete the table. (b) Draw the graph. (c) Estimate the time to fill the tank at 25 litres per minute.

Flow rate	10	12	15	20	30	40	60
Time	12	10	8	6	4	3	2



(c) about 4.8 minutes (accept 4.4 to 5.2)

11

One of these tables shows y inversely proportional to x .

- (a) Which one? Explain how you know. (b) Draw its graph.
(c) Use your graph to estimate y when $x = 3$.

A

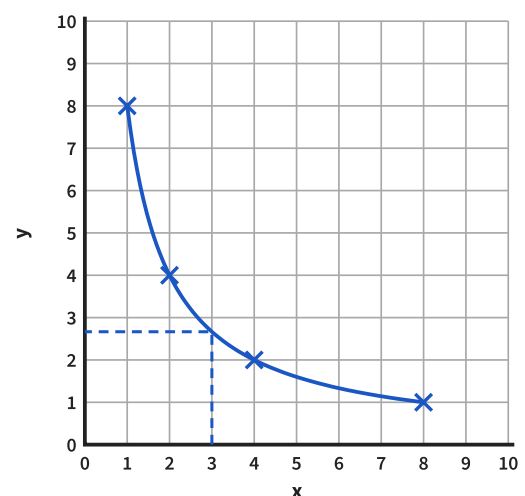
x	1	2	4	8
y	8	4	2	1

B

x	1	2	3	4
y	9	7	5	3

C

x	2	3	4	6
y	9	6	5	3



(a) A: $x \times y = 8$ every time

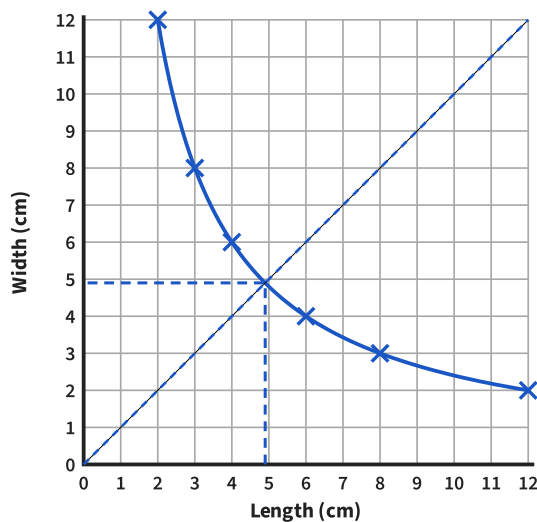
(c) about 2.7 (accept 2.4 to 2.9)

12

Each rectangle has an area of 24 cm^2 . Its length and width are inversely proportional.

(a) Complete the table. (b) Draw the graph. (c) One of the rectangles is a square. Use your graph to estimate its side length.

Length (cm)	2	3	4	6	8	12
Width (cm)	12	8	6	4	3	2



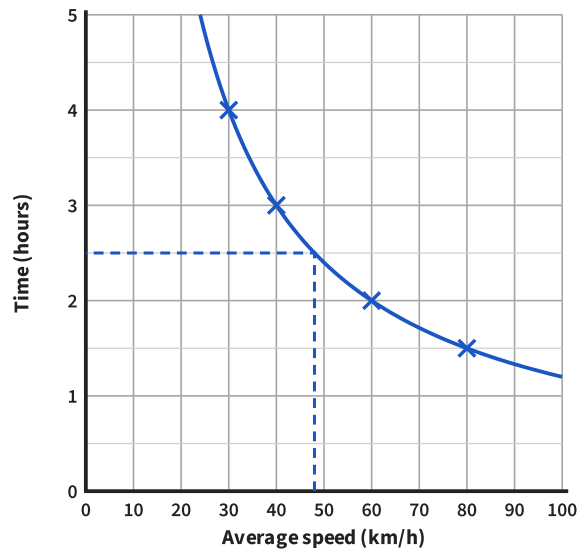
(c) *about 4.9 cm (accept 4.7 to 5.1)*

13

A family drives 120 km. The time taken is inversely proportional to their average speed.

(a) Complete the table. (b) Draw the graph. (c) Estimate the average speed if the drive takes 2.5 hours.

Speed (km/h)	30	40	60	80
Time (hours)	4	3	2	1.5



(c) *about 48 km/h (accept 45 to 51)*

14

For graph A, $x \times y = 6$. For graph B, $x \times y = 12$.

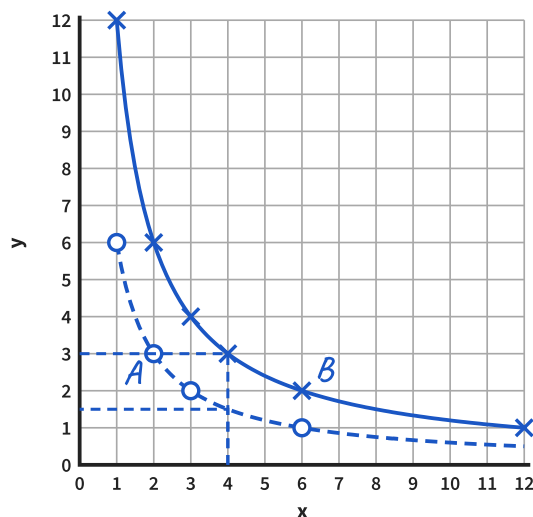
(a) Complete both tables. (b) Draw both graphs on the axes and label them A and B. (c) When $x = 4$, how much bigger is y on graph B than on graph A?

A

x	1	2	3	6
y	6	3	2	1

B

x	1	2	3	4	6	12
y	12	6	4	3	2	1

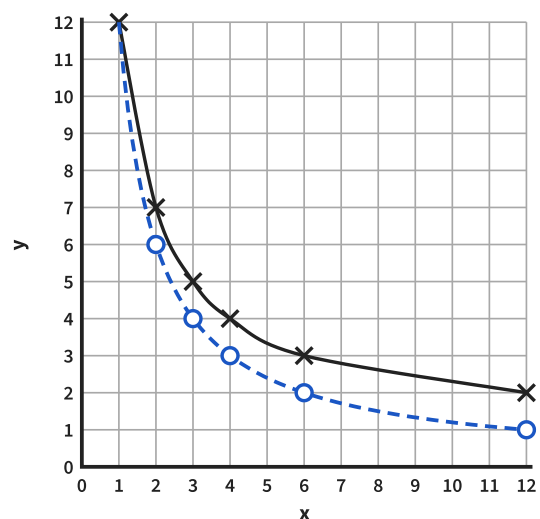


(c) *$3 - 1.5 = 1.5$*

15

Ella plotted these points and joined them with a smooth curve. She says her graph shows that y is inversely proportional to x , because it is a curve that goes down.

(a) Is Ella right? Explain. (b) On the same axes, draw the graph through (1, 12) where y is inversely proportional to x .



(a) *No: $1 \times 12 = 12$ but $4 \times 4 = 16$, $x \times y$ is not the same*