Inverse proportion: y = k/x

1

y is inversely proportional to x.
When $x = 4$, $y = 6$. Write a formula for y in terms of x.

$y \propto \frac{1}{x}$ $\quad y = \frac{k}{x}$

$6 = \frac{k}{4}$

$k = \square \times \square = \square$

$y = \frac{\square}{x}$

2

y is inversely proportional to x.
When $x = 3$, $y = 10$. Write a formula for y in terms of x.

$y \propto \frac{1}{x}$ $\quad y = \frac{k}{x}$

$\square = \frac{k}{\square}$

$k = \square \times \square = \square$

$y = \frac{\square}{x}$

3

T is inversely proportional to n.
When $n = 5$, $T = 8$. Write a formula for T in terms of n.

$T \propto \frac{1}{\square}$ $\quad T = \frac{k}{\square}$

$\square = \frac{k}{\square}$

$k = \square \times \square = \square$

$T = \frac{\square}{n}$

4 *Notice the change!*

y is inversely proportional to x.
When $x = 2$, $y = 18$. Find y when $x = 9$.

$y \propto \frac{1}{x}$ $\quad y = \frac{k}{x}$

$\square = \frac{k}{\square}$

$k = \square \times \square = \square$

$y = \frac{\square}{x}$

$y = \frac{\square}{\square} = \square$

5

y is inversely proportional to x.
When $x = 5$, $y = 12$. Find y when $x = 4$.

$y \propto \frac{1}{\square}$ $\quad y = \frac{k}{\square}$

$\square = \frac{k}{\square}$

$k = \square \times \square = \square$

$y = \frac{\square}{x}$

$y = \frac{\square}{\square} = \square$

6

P is inversely proportional to Q.
When $Q = 6$, $P = 8$. Find P when $Q = 12$.

$P =$ _____

7 *Notice the change!*

y is inversely proportional to x.
When $x = 4$, $y = 9$. Find x when $y = 12$.

$y \propto \frac{1}{x}$ $\quad y = \frac{k}{x}$

$\square = \frac{k}{\square}$

$k = \square \times \square = \square$

$y = \frac{\square}{x}$

$\square = \frac{\square}{x}$

$x = \frac{\square}{\square} = \square$

8

The time, t hours, to paint a fence is inversely proportional to the number of painters, n. 3 painters take 8 hours. How many painters would take 6 hours?

Answer _____

Inverse proportion: y = k/x *further practice*

9

y is inversely proportional to x.
When $x = 6$, $y = 10$. Find y when $x = 15$.

Answer _____

10

y is inversely proportional to x.
When $x = 4$, $y = 5$. Find y when $x = 8$.

Answer _____

11

Is y inversely proportional to x?
Show how you know.

x	2	4	5
y	30	15	12

Answer _____

12

The time, t minutes, to fill a paddling pool is inversely proportional to the number of hoses, h. With 4 hoses it takes 90 minutes. How long does it take with 6 hoses?

Answer _____

13

y is inversely proportional to x.
When $x = 2.5$, $y = 8$. Find x when $y = 5$.

Answer _____

14

A prize fund is shared equally.
Each share, s pounds, is inversely proportional to the number of winners, w. With 8 winners each share is £150. How many winners are there when each share is £100?

Answer _____

15

y is inversely proportional to x.
When $x = 3$, $y = 20$. Mo says that when $x = 6$, $y = 40$. Explain Mo's mistake and find the right value of y.

Answer _____

16

y is inversely proportional to x.
When $x = 2$, $y = 32$. Find the positive value of x for which $y = 4x$.

Answer _____