

Direct Proportion: $y = kx$



1

y is directly proportional to x. When $x = 4$, $y = 20$. Find y when $x = 7$.

1

Statement

$y \propto \square$

2

Replace $\propto$ with $=k$

$y = k \square$

3

Substitute

$\square = k \times \square$

4

Find k

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

5

Formula

$y = \square x$

6

Use it, $x = 7$

$y = \square \times \square = \square$

2

y is directly proportional to x. When $x = 3$, $y = 24$. Find y when $x = 10$.

1

Statement

$y \propto \square$

2

Replace $\propto$ with $=k$

$y = k \square$

3

Substitute

$\square = k \times \square$

4

Find k

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

5

Formula

$y = \square x$

6

Use it, $x = 10$

$y = \square \times \square = \square$

3

y is directly proportional to x. When $x = 5$, $y = 35$. Find y when $x = 12$.

1

Statement

$y \propto \square$

2

Replace $\propto$ with $=k$

$y = k \square$

3

Substitute

$\square = k \times \square$

4

Find k

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

5

Formula

$y = \square x$

6

Use it, $x = 12$

$y = \square \times \square = \square$

4

y is directly proportional to x. When $x = 6$, $y = 18$. Find y when $x = 14$.

1

Statement

$y \propto \square$

2

Replace $\propto$ with $=k$

$y = k \square$

3

Substitute

$\square = k \times \square$

4

Find k

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

5

Formula

$y = \square x$

6

Use it, $x = 14$

$y = \square \times \square = \square$

5

y is directly proportional to x. When $x = 4$, $y = 24$. Find y when $x = 9$.

$y = kx$

Substitute

k =

Formula

Answer

6

y is directly proportional to x. When $x = 10$, $y = 40$. Find y when $x = 25$.

$y = kx$

Substitute

k =

Formula

Answer

7

y is directly proportional to x. When $x = 8$, $y = 40$. Find x when $y = 90$. *Notice the change!*

$y = kx$

Substitute

k =

Formula

Answer

8

P is directly proportional to Q. When $Q = 5$, $P = 35$. Find P when $Q = 20$.

$P = kQ$

Substitute

k =

Formula

Answer

9

M is directly proportional to h. When $h = 15$, $M = 45$. Find h when $M = 75$.

$M = kh$

Substitute

k =

Formula

Answer

10

T is directly proportional to n. When $n = 4$, $T = 32$. Find n when $T = 48$.

$T = kn$

Substitute

k =

Formula

Answer

11

y is directly proportional to x. When $x = 4$, $y = 10$. Find y when $x = 6$.

$y = kx$

Substitute

k =

Formula

Answer

12

y is directly proportional to x. When $x = 10$, $y = 15$. Find y when $x = 4$.

$y = kx$

Substitute

k =

Formula

Answer

Direct Proportion: $y = kx$ *further practice*



13



y is directly proportional to x .

When $x = 2.5$, $y = 9$. Find y when $x = 7$.

Answer _____

14



p is directly proportional to q .

When $q = 12$, $p = 8$. Find q when $p = 14$.

Answer _____

15



y is directly proportional to x .

Complete the table, then write a formula for y in terms of x .

x	15	4	
y	24		40

Formula _____

16



The time, t minutes, to download a file is directly proportional to its size, s MB. A 450 MB file takes 3 minutes.

- (a) Find a formula for t in terms of s .
(b) How long does a 2.1 GB file take?
(1 GB = 1000 MB)

(a) _____

(b) _____

17



y is directly proportional to x^2 .

When $x = 4$, $y = 12$. Find y when $x = 10$.

Answer _____

18



The distance, d metres, a pebble falls is directly proportional to the square of the time, t seconds. It falls 19.6 m in 2 seconds. How long does it take to fall 122.5 m?

Answer _____

19



The time, T seconds, a pendulum takes to swing there and back is directly proportional to the square root of its length, L metres. A pendulum 0.64 m long takes 1.6 seconds. Find the length of a pendulum that takes 2.4 seconds.

Answer _____

20



y is directly proportional to x^2 .

Ria says that when x doubles, y doubles too. Is she right? Explain.

Answer _____