Writing proportionality formulae

# Example

*a* is proportional to *b* so that *a = kb*.

Given that *a = 36* when *b = 12*, find the value of *k*.

Calculate the value of *a* when *b = 2*.

1. Substitute a and b into the formula to find k:

 *36 = k × 12*

÷12

÷12

 *3 = k*

So *k = 3*, therefore *a = 3b* (substituting *k* back into *a = kb*)

1. Use new formula (*a = 3b*) to work out what a is when b = 2

Substitute in *b=2*: *a = 3×2 = 6*

# Questions

1. *a* is proportional to *b* so that *a = kb*.

Given that *a = 60* when *b = 10*, find the value of *k*.

Calculate the value of *a* when *b = 4*.

1. *x* is proportional to *y* so that *x = ky*.

Given that *x = 24* when *y = 12*, find the value of *k*.

Calculate the value of *x* when *y = 5*.

1. *a* is proportional to *b* so that *a = kb*.

Given that *a = 15* when *b = 5*, find the value of *k*.

Calculate the value of *a* when *b = 1*.

1. *p* is proportional to *q* so that *p = kq*.

Given that *p = 30* when *q = 5*, find the value of *k*.

Calculate the value of *p* when *q = 8*.

1. *a* is proportional to *b* so that *a = kb*.

Given that *a = 12.5* when *b = 5*, find the value of *k*.

Calculate the value of *a* when *b = 40*.

1. *m* is proportional to *n* so that *m = kn*.

Given that *m = 180* when *n = 6*, find the value of *k*.

Calculate the value of *m* when *n = 1.5*.

1. *a* is proportional to *b* so that *a = kb*.

Given that *a = 36* when *b = 12*, find the value of *k*.

Calculate the value **of *b* when *a = 3***.

1. *a* is proportional to *b*.

*a = 369* when *b = 123*, find the value of *k*.

Calculate the value of *b* when *a = 963*.

# Answers

1. *a* is proportional to *b* so that *a = kb*.

Given that *a = 60* when *b = 10*, find the value of *k*.

Calculate the value of *a* when *b = 4*. **24**

1. *x* is proportional to *y* so that *x = ky*.

Given that *x = 24* when *y = 12*, find the value of *k*.

Calculate the value of *x* when *y = 5*. **10**

1. *a* is proportional to *b* so that *a = kb*.

Given that *a = 15* when *b = 5*, find the value of *k*.

Calculate the value of *a* when *b = 1*. **3**

1. *p* is proportional to *q* so that *p = kq*.

Given that *p = 30* when *q = 5*, find the value of *k*.

Calculate the value of *p* when *q = 8*. **48**

1. *a* is proportional to *b* so that *a = kb*.

Given that *a = 12.5* when *b = 5*, find the value of *k*.

Calculate the value of *a* when *b = 40*. **100**

1. *m* is proportional to *n* so that *m = kn*.

Given that *m = 180* when *n = 6*, find the value of *k*.

Calculate the value of *m* when *n = 1.5*. **45**

1. *a* is proportional to *b* so that *a = kb*.

Given that *a = 36* when *b = 12*, find the value of *k*.

Calculate the value of *b* when *a = 3*. **1**

1. *a* is proportional to *b*.

*a = 369* when *b = 123*, find the value of *k*.

Calculate the value of *b* when *a = 963*. **321**