

Direct proportion

Use it when y is directly proportional to the square, the cube or the square root of x .

- 1 Statement**
Write it with $\propto$ and the power.

$$y \propto x^2$$

cube: $y \propto x^3$
square root: $y \propto \sqrt{x}$

- 2 Replace $\propto$ with $= k$**
Swap the $\propto$ for $= k$.
Keep the power.

$$y = kx^2$$

- 3 Substitute**
Put in the pair of values.
Square the x value first.

$$\boxed{\text{y value}} = k \times \boxed{\text{x value}}^2$$

cube it, or square root it, to match

- 4 Find k**
Divide by the x value squared.

$$k = \frac{\boxed{\text{y value}}}{\boxed{\text{x value}}^2}$$

cube: divide by the x value cubed
root: divide by its square root

- 5 Formula**
Write the formula with k in.

$$\boxed{y = kx^2}$$

k as a number

- 6 Use it**
Put in the new value.
Square it first.

$$y = k \times \boxed{\text{new } x}^2$$

finding x ? divide by k , then undo the power

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