



Timester Challenge

Direct Proportion



y is directly proportional to x .
Complete the table below.

x	-5	-2	0	2	5
y		-14			35

Bronze ★

y is directly proportional to \sqrt{x} .
 y is 24 when x is 36.
Find a formula linking x and y .

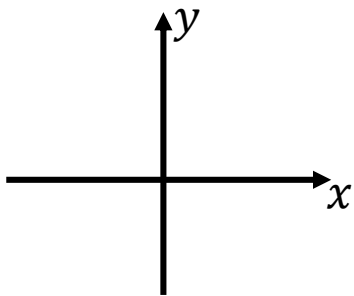
Silver ★

V is directly proportional to the square of l .
Rob says that when l is doubled, the value of V is multiplied by 2. Is Rob correct? Give reason for your answer.

Correct Incorrect

Gold ★

Sketch a graph on the axis that shows y is directly proportional to x .



Bronze ★

y is directly proportional to x^2 .
Work out the value of a .

x	4	a
y	80	180

Silver ★

The length of a baby is directly proportional to its weight. An average baby measures 50cm and has a weight of 2.5kg. Estimate the weight of a baby measuring 48cm long.



Gold ★



Timester Challenge

Direct Proportion



y is directly proportional to x .
Complete the table below.

x	-5	-2	0	2	5
y	-35	-14	0	14	35

× 7

Bronze ★

y is directly proportional to \sqrt{x} .
 y is 24 when x is 36.
Find a formula linking x and y .

$$y \propto \sqrt{x}$$

$$y = k\sqrt{x}$$

$$24 = k\sqrt{36}$$

$$24 = 6k$$

$$k = \frac{24}{6} = 4$$

Therefore
 $y = 4\sqrt{x}$

Silver ★

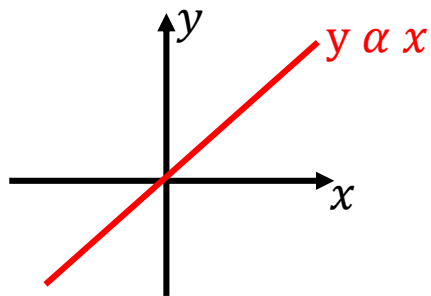
V is directly proportional to the square of l .
Rob says that when l is doubled, the value of V is multiplied by 2. Is Rob correct? Give reason for your answer.

Correct Incorrect

Rob is wrong, because $V \propto l^2$ so $V = kl^2$
if l is doubled is $2l$. So $V = k(2l)^2 = 4kl^2$.

Gold ★

Sketch a graph on the axis that shows y is directly proportional to x .



Bronze ★

y is directly proportional to x^2 .
Work out the value of a .

x	4	6
y	80	180

$$y \propto x^2$$

$$y = kx^2$$

$$80 = k \times 4^2$$

$$80 = 16k$$

$$k = \frac{80}{16} = 5$$

$$180 = 5a^2$$

$$a^2 = \frac{180}{5}$$

$$a^2 = 36$$

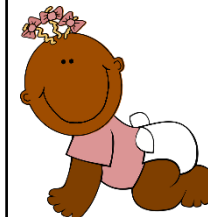
$$a = \sqrt{36}$$

$$a = 6$$

Therefore
 $y = 5x^2$ and $a = 6$

Silver ★

The length of a baby is directly proportional to its weight. An average baby measures 50cm and has a weight of 2.5kg. Estimate the weight of a baby measuring 48cm long.



$$l \propto w$$

$$l = kw$$

$$50 = k \times 2.5$$

$$k = \frac{50}{2.5} = 20$$

So $l = 20w$

$$l = 20w$$

$$48 = 20w$$

$$w = \frac{48}{20}$$

$$w = 2.4\text{kg}$$

Gold ★