GCSE HIGHER · REVISION MAT 1

Equations of proportion

1 $y \propto x$

$y = 15$ when $x = 3$.

Find k.

2 y is directly proportional to x.

$y = 12$ when $x = 4$.

Find y when $x = 10$.

3 $y = \frac{6}{x}$

Show that y halves when x doubles.

4 y is directly proportional to x^2.

$y = 48$ when $x = 4$.

Find y when $x = 5$.

5 y is inversely proportional to x.

$y = 9$ when $x = 4$.

Show that $y = 6$ when $x = 6$.

6 The distance d m that an object falls is proportional to t^2.

$d = 20$ when $t = 2$.

Find t when $d = 125$.

7 y is inversely proportional to x^2.

Show that when x doubles, y is divided by 4.

8 y is directly proportional to $\sqrt{x}$.

$y = 12$ when $x = 16$.

Find x when $y = 15$.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 1

Equations of proportion

1 $15 = 3k$

$k = 5$

2 $y = 3x$

$y = 30$

3 $\frac{6}{2x} = \frac{1}{2} \times \frac{6}{x}$

So y halves.

4 $y = kx^2$, $48 = 16k \Rightarrow k = 3$

$y = 75$

5 $y = \frac{36}{x}$

$\frac{36}{6} = 6$

6 $d = 5t^2$

$t^2 = 25$

$t = 5$ s

7 $y = \frac{k}{(2x)^2} = \frac{k}{4x^2}$

$= \frac{1}{4} \times \frac{k}{x^2}$

8 $y = 3\sqrt{x}$

$\sqrt{x} = 5$

$x = 25$

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