GCSE HIGHER · REVISION MAT 3

Equations of proportion

1 $y \propto x$

$y = 8$ when $x = 2$.

Find y when $x = 7$.

2 a is inversely proportional to b.

$a = 3$ when $b = 10$.

Find a when $b = 6$.

3 Show that this table shows direct proportion.

x	2	4	6
y	10	20	30

4 $A \propto r^2$

$A = 50$ when $r = 4$.

Find A when $r = 6$.

5 y is inversely proportional to x^2.

$y = 10$ when $x = 2$.

Show that $y = 2.5$ when $x = 4$.

6 The time to fill a pool is inversely proportional to the number of pumps.

4 pumps take 9 hours.

How many pumps fill it in 5 hours or less?

7 $y \propto x^3$

Show that doubling x multiplies y by 8.

8 $y \propto x^2$

x is increased by 20%.

Find the percentage change in y.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 3

Equations of proportion

1 $y = 4x$

28

2 $ab = 30$

$a = 5$

3 $\frac{y}{x}$ **= 5 every time, so $y = 5x$**

4 $A = \frac{50}{16}r^2$

112.5

5 $y = \frac{40}{x^2}$

$\frac{40}{16}$ = 2.5

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

$n \geq 7.2$

8 pumps

7 $k(2x)^3 = 8kx^3$

× 8

8 $1.2^2 = 1.44$

44% increase

Mr&Mrs MATHS