GCSE HIGHER · REVISION MAT 5

# Equations of proportion

**1** $y \propto x$

$y = 6$ when $x = 15$.

Find $y$ when $x = 25$.

**2** $y$ is inversely proportional to $x$.

$y = 12$ when $x = 2$.

Find $y$ when $x = 3$.

**3** Show that this table shows inverse proportion.

| x | 1 | 2 | 3 |
|---|---|---|---|
| y | 12 | 6 | 4 |

**4** The mass of a metal ball is proportional to $r^3$.

A ball with $r = 2$ cm has mass 64 g.

Find the mass when $r = 3$ cm.

**5** P is inversely proportional to V.

P = 100 when V = 2.

Show that P = 40 when V = 5.

**6** Energy E is proportional to $v^2$.

E = 50 when $v = 5$.

Find $v$ when E = 200.

**7** $y \propto x^2$

Show that $y$ is multiplied by 4 when $x$ doubles.

**8** $y$ is inversely proportional to $x^2$.

$y = 20$ when $x = 3$.

Find the positive value of $x$ when $y = 5$.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 5

# Equations of proportion

**1** $y = 0.4x$

**10**

**2** $xy = 24$

**$y = 8$**

**3** **$xy = 12$ every time, so $y = \frac{12}{x}$**

**4** $m = 8r^3$

**216 g**

**5** $P = \frac{200}{V}$

**$\frac{200}{5} = 40$**

**6** $E = 2v^2$

$v^2 = 100$

**$v = 10$**

**7** $k(2x)^2 = 4kx^2$

**× 4**

**8** $y = \frac{180}{x^2}$

$x^2 = 36$

**$x = 6$**