

Changing the Subject Home Learning

Answers

1. Make x the subject of the formula:

a. $y = 2x + p$

$$x = \frac{y-p}{2}$$

e. $p + q = ax - z$

$$x = \frac{p+q+z}{a}$$

b. $p = \frac{x}{q}$

$$x = pq$$

f. $p = \sqrt{x}$

$$x = p^2$$

c. $z = ax + y$

$$x = \frac{z-y}{a}$$

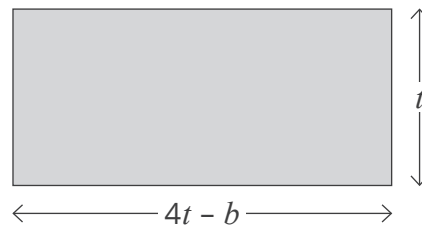
g. $A = \pi x^2$

$$x = \pm \sqrt{\left(\frac{A}{\pi}\right)}$$

d. $r = \frac{px}{y}$

$$x = \frac{ry}{p}$$

2. The diagram shows a rectangle. All measurements are given in centimetres.



a. Write down an equation for the perimeter, P , of the rectangle.

$$P = 10t - 2b \text{ cm}$$

b. Rearrange your formula to make t the subject of the formula.

$$t = \frac{P+2b}{10} \text{ cm}$$

3. A car is travelling at $(x + 2)$ miles per hour for t hours.

a. Write down an equation for the distance travelled, d .

$$d = t(x + 2) \text{ miles or } d = tx + 2t \text{ miles}$$

b. Rearrange your formula to make x the subject.

$$x = \left(\frac{d}{t} - 2\right) \text{ miles per hour or } x = \frac{d-2t}{t} \text{ miles per hours}$$



4. Make x the subject of the formula:

a. $4x + p = ax + z$

$$x = \frac{z - p}{4 - a}$$

b. $3(x - z) = px + r$

$$x = \frac{r + 3z}{3 - p}$$

c. $a(y - x) = b(y + x)$

$$x = \frac{y(a - b)}{a + b}$$

d. $y = \frac{x + 2}{x - 1}$

$$x = \frac{y + 2}{y - 1}$$

Challenge:

Make x the subject of the formula:

$$\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$$

$$x = \frac{yz}{y - z}$$