

## Solving Equations (recap)

$$\begin{aligned}2x + 7 &= 20 \\2x &= 20 - 7 \\2x &= 13 \\x &= \underline{6.5}\end{aligned}$$

$$\begin{aligned}6x - 2 &= 1 \\6x &= 1 + 2 \\6x &= 3 \\x &= \underline{\frac{1}{2}}\end{aligned}$$

$$3(x + 8) = 33$$

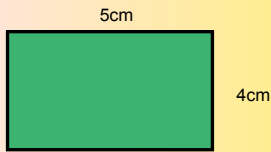
$$\begin{aligned}3x + 24 &= 33 \\3x &= 33 - 24 \\3x &= 9 \\x &= \underline{3}\end{aligned}$$

$$\begin{aligned}2x + 12 - 2x &= 10 - 2x \\12 &= 10 + 2x \\12 - 10 &= 2x \\2 &= 2x \\x &= \underline{1}\end{aligned}$$

$$3x + 5 = 21 - x$$

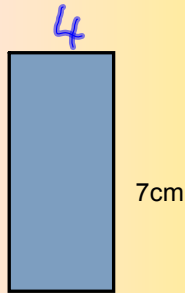
$$\begin{aligned}4x + 5 &= 21 \\4x &= 21 - 5 \\4x &= 16 \\x &= \underline{4}\end{aligned}$$

## Rearranging Formulae



$$A = 20 \text{ cm}^2$$

$$A = L \times W$$



$$A = L \times W$$

$$A = 28 \text{ cm}^2$$

$$\frac{A}{L} = W$$

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

Find the

- a) speed, if  $d = 30 \text{ km}$  and  $t = 2 \text{ hrs}$
- b) distance, if speed =  $50 \text{ km/h}$  and  $t = 2 \text{ hrs}$
- c) time if  $s = 45 \text{ km/h}$  and  $d = 135 \text{ km}$

$$s = 15 \text{ km/h}$$

$$45 = \frac{135}{t}$$

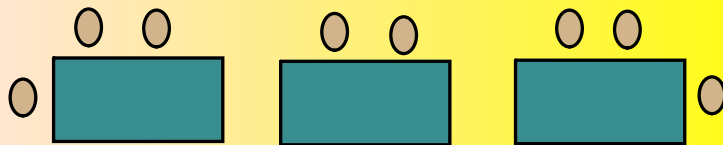
$$45t = 135$$

$$t = \frac{135}{45} = 3 \text{ h}$$

$$50 = \frac{d}{2}$$

$$50 \times 2 = d = 100$$

In a school students are seated at desks like this:



$$S = 2d + 2$$

$$d = 3$$

$$S = 8$$

Make up a rule for the number of students ( $s$ ) in a classroom using the number of desks ( $d$ )

- a) Work out the number of students if there are 30 desks
- b) work out the number of desks if there are 24 children
- c) re write the rule with  $d$  as the subject ( $d = \dots$ )

$$S - 2 = 2d$$

$$\frac{S - 2}{2} = d$$

## Changing the Subject of a formula

$$y = x + 3$$

In this equation  $y$  is the subject

$$y - 3 = x$$

$x$  is now the subject

$$y = x - 5$$

$$y + 5 = x$$

$$\underline{x = y + 5}$$

$$4y = 2x$$

$$\frac{4y}{2} = x$$

$$2y = x$$

$$\underline{x = 2y}$$

$$2y = 3x - 1$$

$$2y + 1 = 3x$$

$$\frac{2y + 1}{3} = x$$

$$x = \frac{2y + 1}{3}$$

$$3(4t + 5) = 3x - 1$$

$$4t + 5 + 1 = 3x$$

$$4t + 6 = 3x$$

$$\frac{4t + 6}{3} = x$$

$$14\pi = 4x$$

$$\frac{14\pi}{4} = x$$

$$x = \frac{7\pi}{2}$$

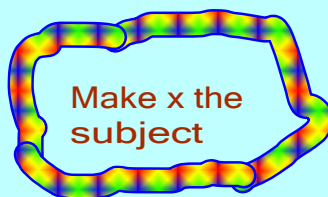
$$3(x + 7) = 42$$

$$3x + 21 = 42$$

$$3x = 42 - 21$$

$$3x = 21$$

$$\underline{x = 7}$$



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