

IAL: to use simple formulae

<https://www.bbc.co.uk/bitesize/topics/zghp34j/articles/z2qmrwx>  
<https://www.bbc.co.uk/bitesize/clips/z3bcd2p>

A

$$1) y + 19 = 25$$

$$30 - z = 16$$

Calculate:

$$y + z = \boxed{20}$$

$$z - y = \boxed{8}$$

$$z \text{ multiplied by } y = \boxed{84}$$

$$2) 3a = 15$$

This means  $3 \times a = 15$  so  $a$  must = 5

Find the values of  $b$  for each of these:

$$5b = 45 \quad \boxed{b = 9}$$

$$b + 83 = 101 \quad \boxed{b = 18}$$

$$72 \div b = 12 \quad \boxed{b = 6}$$

$$13 \times b = 104 \quad \boxed{b = 8}$$

3) Calculate the value of  $c$  :

$$30 = 2c + 20 \quad \boxed{c = 5}$$

$$100 = 500 \div c \quad \boxed{c = 5}$$

B

$6e + 7 = 43$	$e = 6$
$0.5 \times 9 = f$	$f = 4.5$
$17 = 4g + 1$	$g = 4$
$2h - 5 = 5$	$h = 5$
$27 = 6i - 27$	$i = 9$
$60 + 4j = 10^2$	$j = 10$

C

Find the missing values and complete the table below:

a	4a	4a + 2
12	48	50
9	36	38
25	25	102

Find the value of a and b:

$$2a + a^2 = 3.5 \times 10 = 70 \div b$$

$$a = 5$$

$$b = 2$$

IAL: to use simple formulae



A

Ernie starts a business selling multi-packs of hand sanitiser.

This is the formula for the cost to the customer:

**cost = number of bottles  $\times$  £3 + 50p for the bag.**

So if you bought 3 bottles , it would be  $3 \times \text{£}3 = \text{£}9$  and then another 50p for the bag.

**Total cost for 3 bottles = £9.50**

Use the formula above to calculate:

**How much would it cost to buy 9 bottles of Ernie's hand sanitiser?**

$$\begin{aligned} \text{£}3 \times 9 &= \text{£}27 \\ \text{£}27 + 50\text{p} &= \text{£}27.50 \end{aligned}$$

**£ 27.50**

**Gumbo spent £39.50 on Ernie's products.  
How many bottles did he get?**

$$\begin{aligned} \text{£}39.50 - 50\text{p} &= \text{£}39 \\ 39 \div 3 &= 13 \end{aligned}$$

**13 bottles**

B



This is the formula for how long it takes to cook a roast chicken:

$$\text{time} = 20 \text{ minutes per kg} + 25 \text{ minutes}$$

Calculate how long it would take to cook a chicken that weighs 6kg.

$$6 \times 20 \text{ mins} = 120 \text{ mins}$$

$$120 + 25 = 145 \text{ mins}$$

145 mins OR  
2 h 25 mins

If it takes Kylie 3 hours 5 mins to cook her chicken. How heavy was it?

$$3 \text{ hrs } 5 \text{ mins} = 185 \text{ mins}$$

$$185 - 25 = 160 \text{ mins}$$

$$160 \div 20 = 8$$

8 kg

C



The cost to hire the A-Team van  
(if you can find it) is:

$$\text{cost} = \text{£}150 \times \text{number of hours} + \text{£}85 \text{ booking fee}$$

How much would it cost to hire it for 320 minutes?

$$320 \text{ mins} = 5 \text{ hours } 20 \text{ mins}$$

$$5 \times \text{£}150 = \text{£}750$$

20 mins  $\times$  3 = 1 hour so  $\text{£}150 \div 3$  would be the cost of 20 mins

$$\text{so } 20 \text{ mins} = \text{£}50$$

$$\text{£}750 + \text{£}50 + \text{£}85 = \text{£}885$$

£ 885

IAL: to express missing numbers algebraically

- Find the value of the circle in each of the following problems. It is worth a different value in each question.

$$\begin{array}{l}
 \boxed{\phantom{00}} = 5 \qquad \text{Hexagon} = 8 \\
 \boxed{5} + \text{Hexagon}(8) + \text{Hexagon}(8) + \text{Circle}(16) = 27 \\
 \text{Hexagon} + \text{Hexagon} + \text{Circle}(7) + \text{Circle}(7) = 30 \\
 \text{Circle}(7) + \text{Circle}(7) + \text{Circle}(7) + \text{Circle}(7) + \boxed{5} = 33
 \end{array}$$

Can you write each of the number sentences above algebraically?

$$\begin{array}{l}
 1) \boxed{\phantom{00}} + 2 \text{Hexagon} + \text{Circle} = 27 \\
 2) 2 \text{Hexagon} + 2 \text{Circle} = 30 \\
 3) 4 \text{Circle} + \boxed{\phantom{00}} = 33
 \end{array}$$