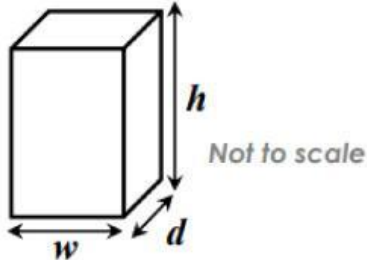




# Algebra

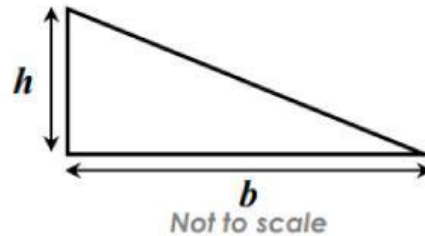
## Formulae

10a. Work out the volume (  $v$  ) of this cuboid using the formula  $v = w \times h \times d$ , if  $w = 3\text{cm}$ ,  $h = 5.5\text{cm}$  and  $d = 2\text{cm}$ .



VF

10b. Work out the area (  $a$  ) of this shape using the formula  $a = (b \times h) \div 2$ , if  $b = 5\text{cm}$  and  $h = 3.2\text{cm}$ .



VF

11a. Circle the correct formula for doubling a number and finding 45%.

$$a = 2n \times 0.45$$

$$a = n \times 2.45$$

$$a = \frac{2n}{0.45}$$



VF

11b. Circle the correct formula for finding 125% of a number.

$$a = n \div 12.5$$

$$a = 0.125n$$

$$a = n + 0.25n$$



VF

12a. To calculate the BMI of a person, you can use their weight in kilograms and height in metres.

Expressed as the formula:

$$b = \frac{w}{h^2}$$

If someone is 2m tall (  $h$  ) and weighs 92 kg (  $w$  ), what is their BMI?



VF

12b. To work out the speed of a travelling car, you can use the distance in miles and the time in hours.

Expressed as the formula:

$$s = \frac{d}{t}$$

If a car travels 12 miles (  $d$  ) in 30 minutes (  $t$  ), what speed was it travelling at?



VF

7. The price for a design to be printed on a bag varies, depending on the number of colours used.

The formula below is used to calculate the cost of the printing service:

$$\text{Price} = \text{£}1.54 \times \text{number of colours} + \text{£}2.02$$



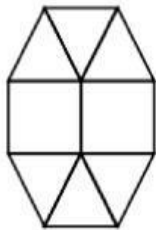
An extra 10% is then added to the final cost of the service.  
What is the total price for printing a design that includes 7 colours?



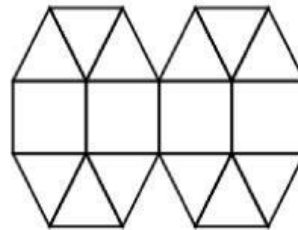
VF  
HW/Ext

8. Sarah is creating designs using two different shapes.

She gives each shape a value.



Total value  
= 12



Total value  
= 24

The formula to create the shapes is always 6 triangles + 2 squares, written  $6t + 2s$ .

If  $s = 0.75$ , what is the value of  $t$ ?



VF  
HW/Ext