

Use simple formulae for area and volume

- 1 The formula to find the area of a rectangle is  $A \text{ (Area)} = l \text{ (length)} \times w \text{ (width)}$ . Use this to find the missing values in the table below.

	$l$	$w$	$A$
Rectangle A	4 cm	5 cm	20 cm <sup>2</sup>
Rectangle B	8 cm	9 cm	72 cm <sup>2</sup>
Rectangle C	3 m	12 m	36 m <sup>2</sup>
Rectangle D	13 mm	9 mm	117 mm <sup>2</sup>
Rectangle E	2.5 m	18 m	45 m <sup>2</sup>



- 2 Use the formula  $V \text{ (Volume)} = l \times w \times h \text{ (height)}$  to find the volume of the cuboids.

Not to scale

a  $V = 180 \text{ cm}^3$

b  $V = 35 \text{ m}^3$

- 3 Use the formulae above to identify two possible sets of missing values (each side is a whole number).

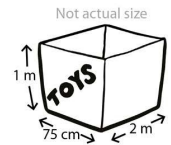
a Area = 16 cm<sup>2</sup>  
 $16 \text{ cm}^2 = 1 \text{ cm} \times 16 \text{ cm}$  or  $16 \text{ cm}^2 = 2 \text{ cm} \times 8 \text{ cm}$  or  $4 \text{ cm} \times 4 \text{ cm}$

b Volume = 24 cm<sup>3</sup>  
 $24 \text{ cm}^3 = 2 \text{ cm} \times 3 \text{ cm} \times 4 \text{ cm}$   
 or  $24 \text{ cm}^3 = 2 \text{ cm} \times 2 \text{ cm} \times 6 \text{ cm}$

Solve problems involving the calculation and conversion of units of volume, using decimal notation up to three decimal places

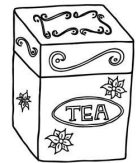
- 1 A box had a height of 5 cm, a length of 6 cm and a width of 2 cm. What was the volume of the box in cubic centimetres? 60 cm<sup>3</sup>

- 2 Look at the toy box shown. What is the volume of the toy box in cubic metres? 1.5 m<sup>3</sup>

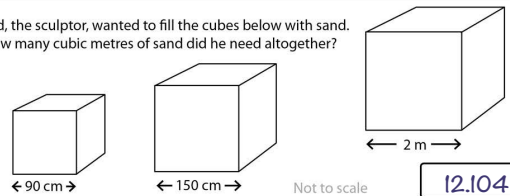


- 3 In the toy box, there was a cuboid-shaped container for toy cars. It had a volume of 300 cm<sup>3</sup>. The top of the container was 0.06 m × 0.05 m. What was the height of the container in centimetres? 10 cm

- 4 A tea caddy was cubic-shaped, with a base measuring 4 cm × 5 cm and a height of 0.24 m. Mrs Black filled the caddy with tea until it reached  $\frac{3}{4}$  of the height. How many cubic centimetres of space did the tea fill? 360 cm<sup>3</sup>



- 5 Ted, the sculptor, wanted to fill the cubes below with sand. How many cubic metres of sand did he need altogether? 12.104 m<sup>3</sup>



Draw 2D shapes using given dimensions and angles

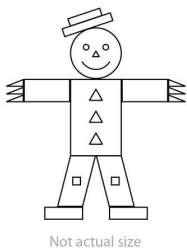
Use paper or your exercise book to answer the following questions.

- 1 Draw the following rectangles as accurately as you can. **rectangles drawn accurately**
- a Length 5 cm, width 3 cm      c Length 4.4 cm, width 3 cm
- b Length 6 cm, width 6 cm      d Length  $3\frac{1}{2}$  cm, width  $6\frac{1}{2}$  cm

- 2 Draw the following triangles. **triangles drawn accurately**
- a An equilateral triangle with sides measuring 4 cm.
- b An isosceles triangle with a base of 4.5 cm and an interior angle of 50° at either side of its base.
- c Not actual size
- d Not actual size

- 3 Julia made a scarecrow using 2D shapes. Use the information below to draw Julia's scarecrow as accurately as you can. You will need to use your knowledge of the properties of shape. **scarecrow drawn accurately**

Part of scarecrow	Shape	Dimensions
top of hat	rectangle	0.5 cm × 2 cm
brim of hat	rectangle	0.4 cm × 3 cm
head	circle	diameter 3 cm
body	rectangle	4 cm × 6 cm
arms	rectangles	3.5 cm × 1.2 cm
fingers	right angle triangles	base 0.4 cm height 1 cm
legs	parallelograms	2 cm × 4 cm 60° × 2 120° × 2
feet	rectangles	3 cm × 1 cm
buttons	equilateral triangles	sides 1 cm
knee patches	squares	1 cm <sup>2</sup>
eyes	circles	diameter 0.2 cm (approx)
nose	triangle	sides approx 0.2 cm
mouth	arc of a circle	to fit



Calculate and interpret the mean as an average

- 1 Tom drew the graph below to show the distance he jumped over 5 standing jumps. **a** What was the average distance Tom jumped? 0.8 m

- b Tom only jumped 0.6 m for his 6th jump. To the nearest centimetre, what was his new average? 77 cm

- 2 Anya is saving for some trainers which cost £28.95. On average, how much would she need to save each week for 5 weeks? £ 5.79

- 3 Linzi collects £8.16 for charity. Robert collects £7.54 and Joseph collects £9.20. What is the average amount collected? £ 8.30

- 4 Dale was investigating how long he could stand on one foot. His results are shown in the table below.

attempt	1	2	3	4	5
time in seconds	18	17	13	19	18

- a What was his average time? 17 seconds
- b Dale wanted to increase his average to 18 seconds. For how many seconds would he have to stand on one foot in his sixth attempt to achieve this? 23 seconds