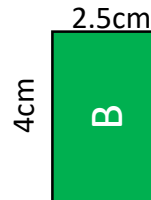
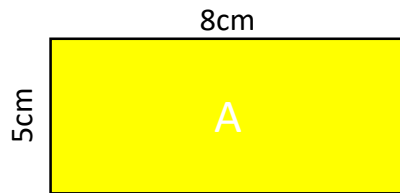


Mrs Mountney 's Helpful Hints

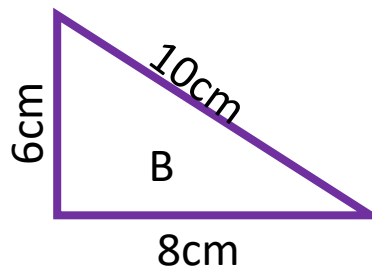
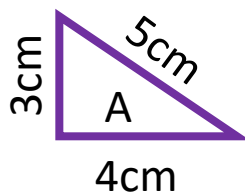
-Similarity

Shapes are said to be similar if they are an enlargement of each other



$$\begin{aligned} \text{Shape A} \times 0.5 &= \text{Shape B} \\ 8 \times 0.5 &= 4 \\ 5 \times 0.5 &= 2.5 \end{aligned}$$

Scale Factors



These two triangles are similar to each other. To calculate the scale factor simply divide two of the similar sides by each other.

$$6 \div 3 = 2$$

$$8 \div 4 = 2$$

$$10 \div 5 = 2$$

Therefore the scale factor is 2.

Remember to divide more than one side to ensure you get the same number,

Length

The perimeter of shape B is 2 times greater than the perimeter of shape A.

$$\begin{aligned} \text{Shape A: } 5 + 3 + 4 \\ &= 12 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Shape B: } 10 + 8 + 6 \\ &= 24 \text{ cm} \end{aligned}$$

$$24 \div 12 = 2$$

$$SF = 2$$

Area

The area of shape B is 4 times greater than the area of shape A.

$$\begin{aligned} \text{Shape A: } \frac{4 \times 3}{2} \\ &= 6 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Shape B: } \frac{8 \times 6}{2} \\ &= 24 \text{ cm}^2 \end{aligned}$$

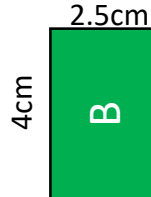
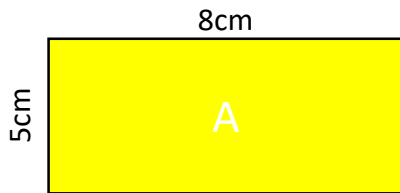
$$24 \div 6 = 4$$

$$SF = 4$$

Mrs Mountney 's Helpful Hints

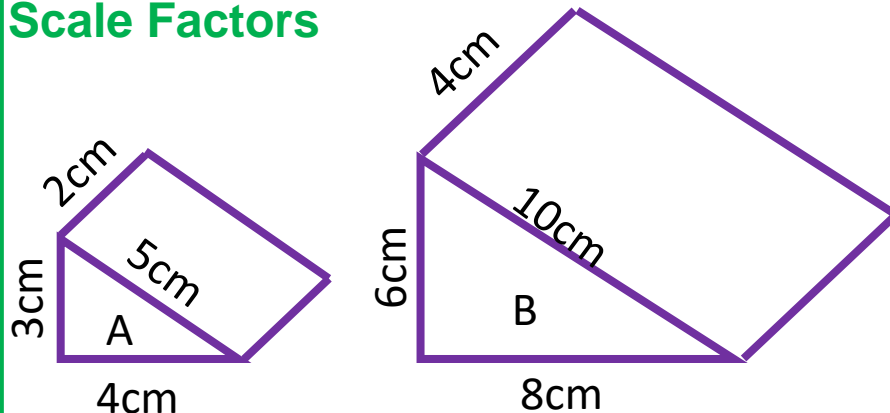
-Similarity

Shapes are said to be similar if they are an enlargement of each other



$$\begin{aligned} \text{Shape A} \times 0.5 &= \text{Shape B} \\ 8 \times 0.5 &= 4 \\ 5 \times 0.5 &= 2.5 \end{aligned}$$

Scale Factors



Volume

The volume of shape B is 8 times greater than the volume of shape A.

$$\begin{aligned} \text{Shape A: } & \frac{4 \times 3 \times 2}{2} \\ & = 12 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} \text{Shape B: } & \frac{8 \times 6 \times 4}{2} \\ & = 96 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} 96 \div 12 &= 8 \\ SF &= 8 \end{aligned}$$

In summary

	Shape A	Scale Factor	Shape B
Length	3	$\times 2$	6
Area	6	$\times 4$	24
Volume	12	$\times 8$	96

When two or more shapes are similar the following relationship happens with the scale factors:

$$\begin{aligned} \text{Length} &\times SF \\ \text{Area} &\times SF^2 \\ \text{Volume} &\times SF^3 \end{aligned}$$