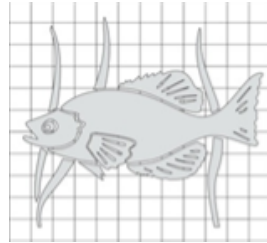


Scale Diagrams:



A scale diagram that is an enlargement or reduction of another diagram.

The measurements in each diagram are compared.



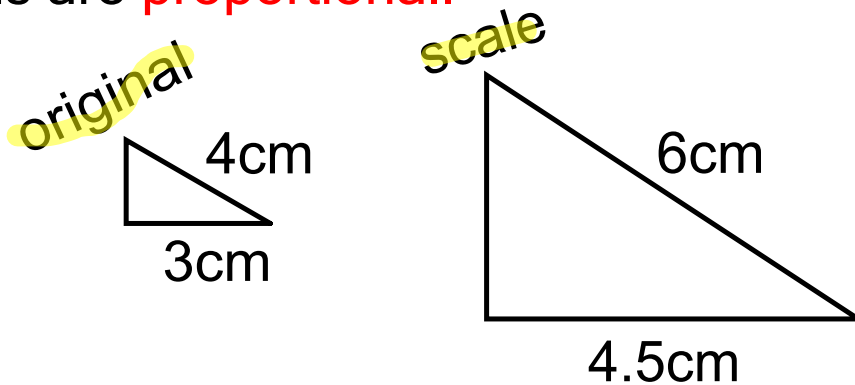
$$\text{Scale Factor} = \frac{\text{Length of Scale Diagram}}{\text{Length of Original Diagram}}$$



The **scale factor** can be written as a fraction or decimal.

If the scale factor is **less than one**, the diagram is a **reduction**, **larger than one** indicates the diagram is an **enlargement**.

When pairs of corresponding lengths have the same scale factor, we say that the corresponding lengths are **proportional**.

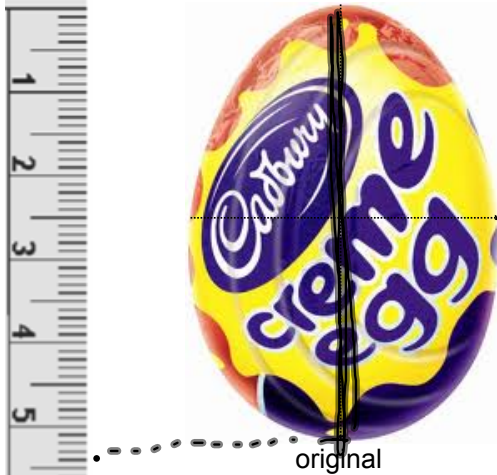


$$\frac{\text{scale}}{\text{original}} = \frac{6}{4}$$
$$= 1.5$$

$$\frac{\text{scale}}{\text{original}} = \frac{4.5}{3}$$
$$= 1.5$$



Determine the scale factor.



5.5 cm

original

$$\text{Scale Factor} = \frac{\text{Scale Diagram}}{\text{Original Diagram}}$$



3.5 cm

scale

$$= \frac{3.5 \text{ cm}}{5.5 \text{ cm}} = 0.63$$

This photo of longhouses has dimensions 9 cm by 6 cm.

The photo is to be enlarged by a scale factor of  $\frac{7}{2}$   $\rightarrow 3.5$

Calculate the dimensions of the enlargement.



original  
Original



scale  
Scale

$$\begin{aligned} \text{Length} &= 9\text{cm} \times 3.5 \\ &= 31.5\text{cm} \end{aligned}$$

$$\begin{aligned} \text{Width} &= 6\text{cm} \times 3.5 \\ &= 21\text{cm} \end{aligned}$$

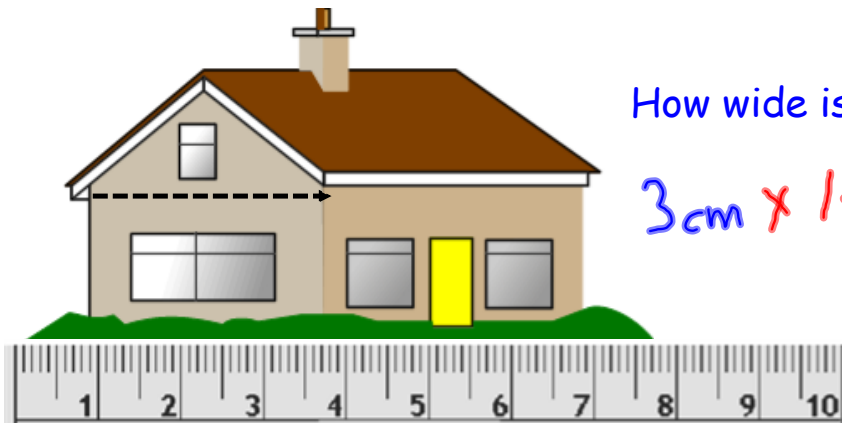
Sometimes you are only given the scale diagram....

A scale may be given as a ratio.

The scale on this scale diagram of a house is 1:150.

This means that 1cm on the diagram represents 150 cm or 1.5m on the house.

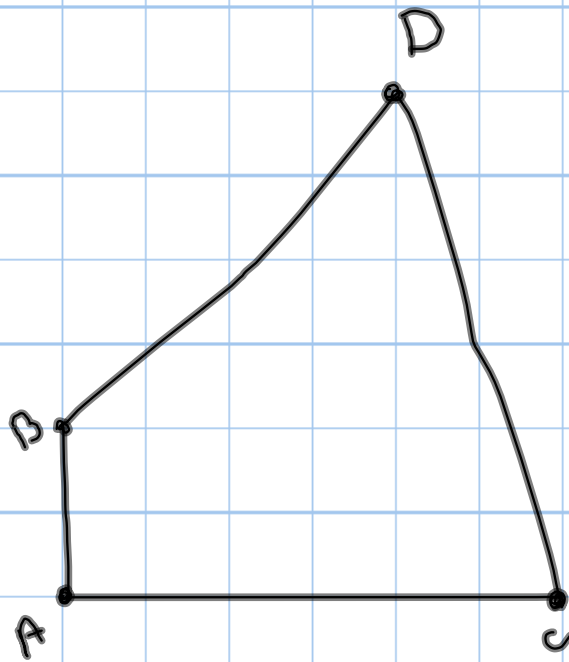
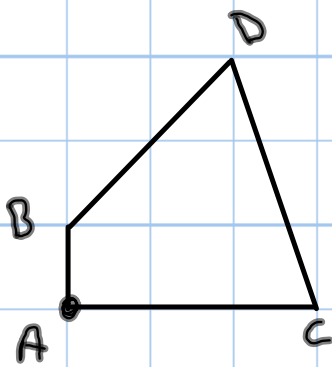
In other words... the scale factor is  $\frac{1}{150}$



How wide is the actual house??

$$3\text{ cm} \times 150 = 450\text{ cm}$$

Draw the scale diagram with scale of 2.



# Homework

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