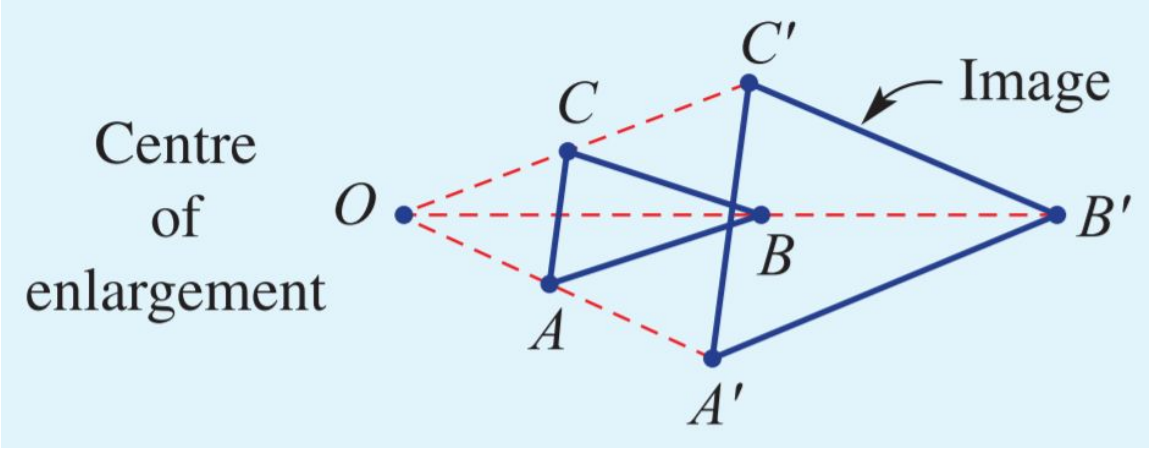
ENLARGEMENT

Enlargement is a transformation that involves the increase or decrease in size of an object.

The shape of the object is unchanged.

Enlargement uses a centre of enlargement and an enlargement factor (also named "scale factor").



SIMILAR FIGURES

Two figures are similar if they have the same shape, but not the same size.

- Matching angles are equal
- Pairs of matching sides are in the same proportion or ratio

The scale factor is $\frac{\text{image length}}{\text{original length}}$

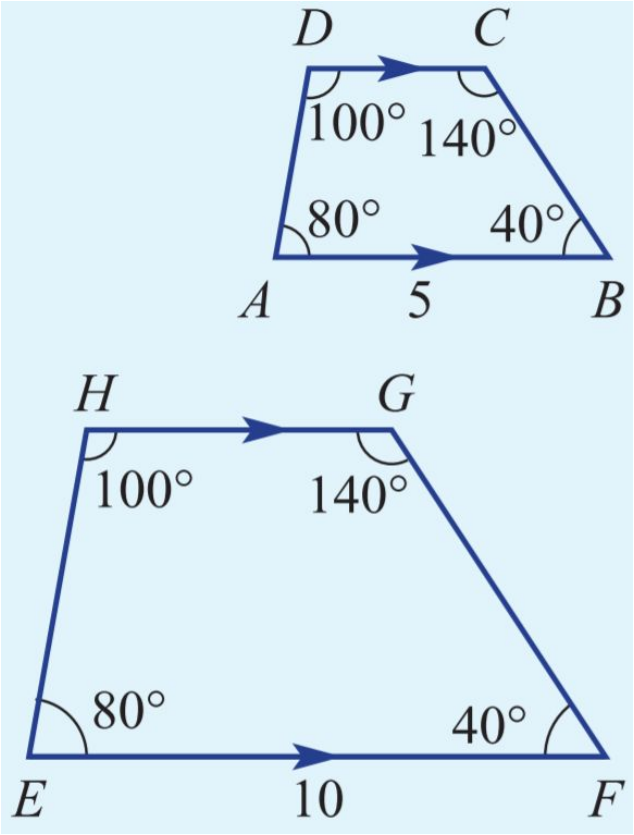
If the scale factor is greater than 1, the image will be larger than the original.

If the scale factor is less than 1, the image will be smaller than the original.

SIMILARITY

The symbol $\equiv$ is used to describe similarity.

Example: ABCD $\equiv$ EFGH



The letters are usually written in matching order.

Scale factor $= \frac{EF}{AB} = \frac{10}{5} = 2$ so all the sides of the larger shape are twice the length of the original shape.

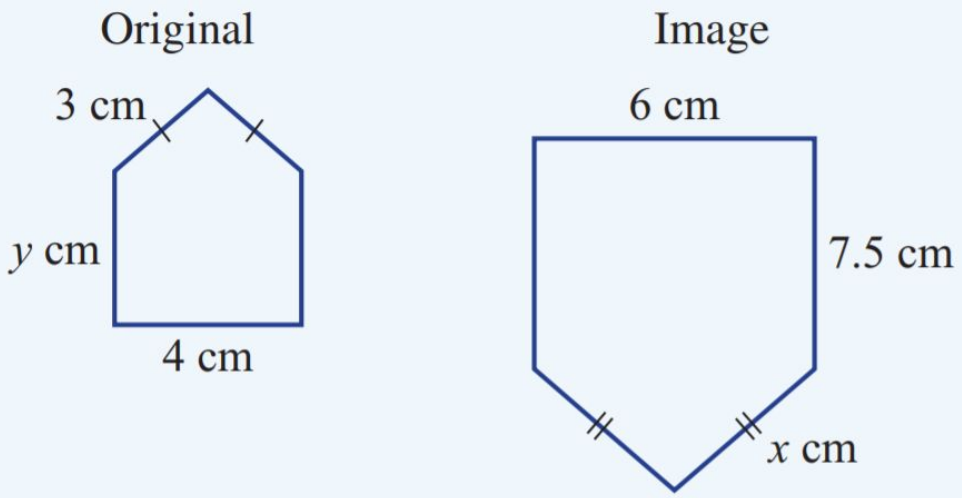
CALCULATION USING THE SCALE FACTOR

These figures are similar.

a Find a scale factor.

b Find the value of x.

c Find the value of y.



SOLUTION

a $\text{Scale factor} = \dfrac{6}{4} = 1.5$

b $x = 3 \times 1.5$
$= 4.5$

c $y = 7.5 \div 1.5$
$= 5$

EXPLANATION

Choose two matching sides and use

$$\text{scale factor} = \frac{\text{image length}}{\text{original length}}$$

Multiply by the scale factor to get the length of the side on the larger image.

Divide by the scale factor to get the length of the side on the smaller image.