

Essential knowledge

Recognise enlargement and similarity • Enlarge a shape by a positive SF • Enlarge a shape from a point • Enlarge a shape by a fractional SF • Work out missing sides and angles in a pair of similar shapes.

Key Vocabulary

Similar Shapes: shapes of different sizes that have corresponding sides in equal proportion and identical corresponding angles.

Scale Factor: the multiple describing how much a shape has been enlarged

Enlarge: to change the size of a shape (enlargement is not always making a shape bigger)

Corresponding: objects (or sides) that appear in the same place in two similar situations.

Image: the picture or visual representation of the shape

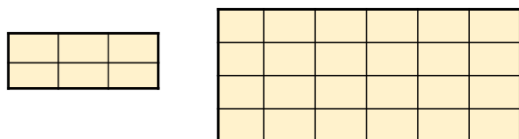
Prior learning links

Year 7- Lines and angles

Year 8- Developing geometry

Recognise enlargement & similarity

Shapes are similar if all pairs of corresponding sides are in the same ratio

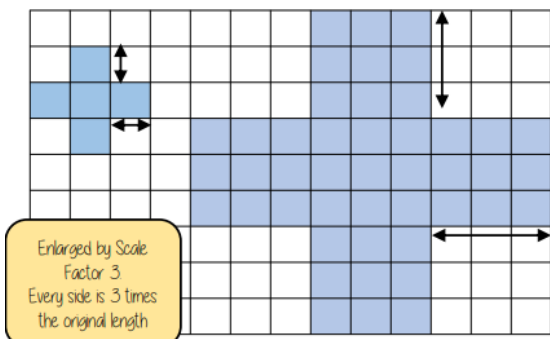


These shapes are similar because all sides are increased by the same ratio

Enlargements are similar shapes with a ratio other than 1

Enlarge by a positive scale factor

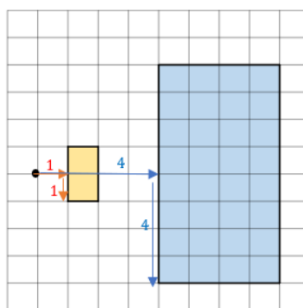
With a scale factor larger than 1 it makes the shape bigger



With a scale factor between 0 and 1 it makes the shape smaller

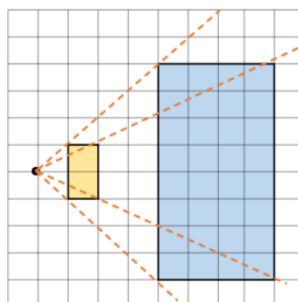
Enlarge a shape from a point

Scale distances method



Scale the distance between the point of enlargement and each corresponding vertices

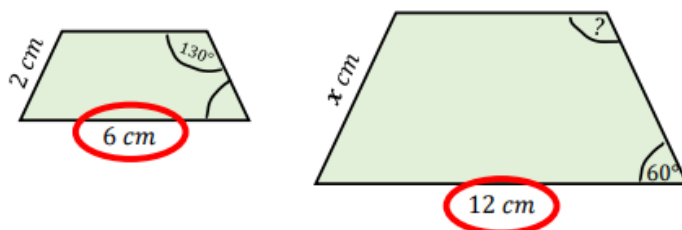
Rays method



Multiply the distance from the centre of corresponding vertices by the scale factor along the ray

Calculations in similar shapes

Properties of shapes don't change with enlargements or in similar shapes

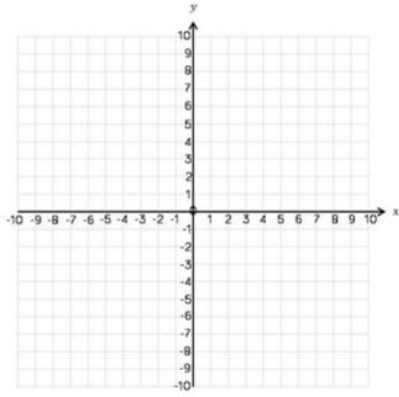


$$\text{Scale factor} = 12 \div 6 = 2$$

Prior learning links

Plot the coordinates $(1, -4)$, $(7, 3)$, $(-4, 3)$, $(9, -5)$ on a coordinate grid.

Which two coordinates are on the same line?
Which coordinate is in the second quadrant?



Key Vocabulary

Similar Shapes:

Scale Factor:

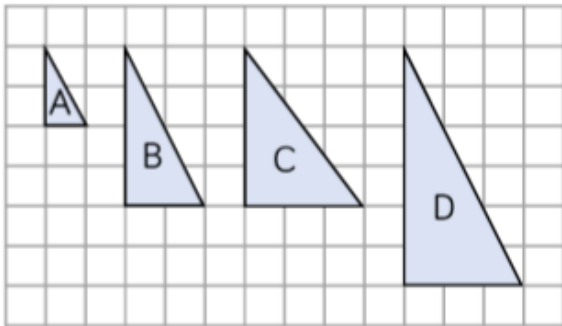
Enlarge:

Corresponding:

Image:

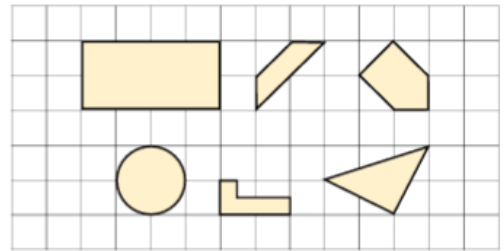
Recognise enlargement & similarity

Which shapes are similar? How can you

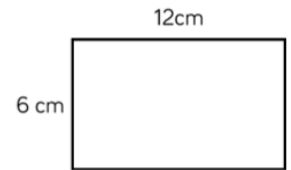


Scale factors

Enlarge each shape by scale factor 3



Draw an enlargement of the rectangle by scale factor $\frac{1}{3}$



A shape can only be enlarged by a fractional scale factor if the denominator of the fraction is a factor of the side lengths.

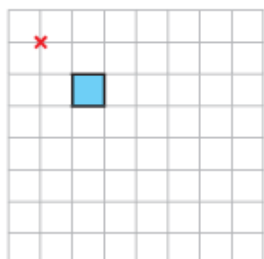


Explain why Amir is incorrect.

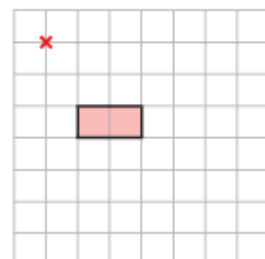
Enlarge a shape from a point

Enlarge the shapes from these points (count the squares or use the rays method to help you)

a) scale factor 3



b) scale factor 2



Similar shapes

Fill in all the missing information for each pair of similar shapes

