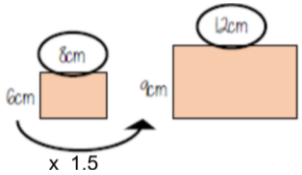
Geometry and Measure 2 – Investigating Angles and Shapes – Knowledge Organiser

Objectives:

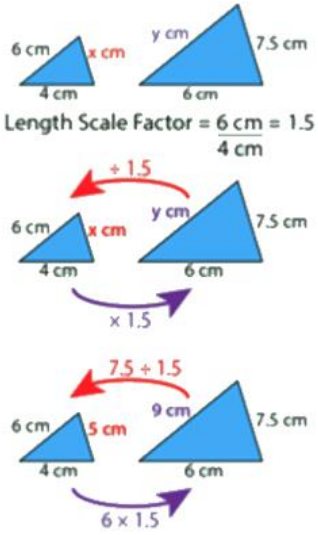
- Apply the concept of similarity and the relationship between lengths in similar shapes
- Make links between similarity and scale factors
- Know the trigonometric ratios of sine, cosine and tangent
- Apply trigonometric ratios to find angles and lengths in right angled triangles

Key Facts – Similar Shapes

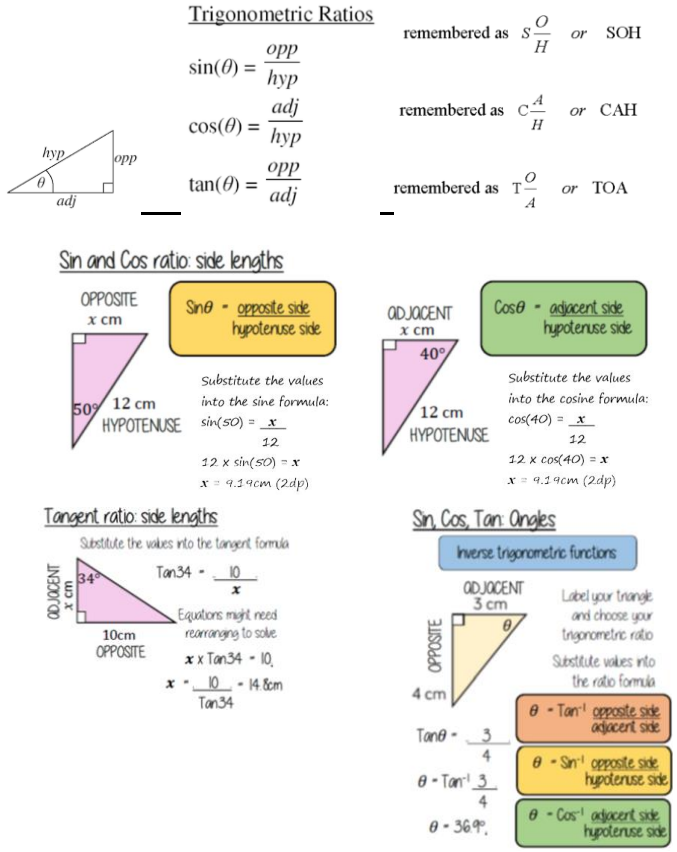
The equivalent sides of the similar shapes below use the same scale factor.



The two triangles below are similar. Scale factors are used to find the missing side lengths, x and y:

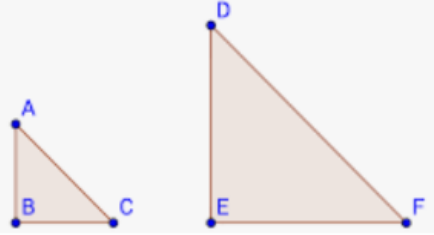


Key Facts – Trigonometry



Key Concept Check

- How does trigonometry relate to similar triangles and scale factors?
- What does the tangent of an angle mean?
- When solving a trigonometric problem, how do we know which trigonometric ratio to use?
- Why does sin(30°) = cos(60°)?



Key words used in this unit:

Similar Shapes- are identical in shape, but not in size. Similar shapes are enlargements of each other.

Scale Factor- is what we multiply the lengths of the original shape by, to find the lengths of the enlarged shape.

Trigonometry- is the study of the relationship between side lengths and angles of all triangles. For right-angled triangles, Sine, Cosine and Tangent are the main functions used.

Opposite Side- The opposite side is opposite the given angle, or angle to be found (that is not the right angle).

Adjacent Side- The adjacent side is between the right angle and given angle.

Hypotenuse Side- The hypotenuse side is the longest side in the triangle, opposite the right angle.

Sine - is the ratio (division) of the opposite side compared to the hypotenuse side.

Cosine - is the ratio of the adjacent side to the hypotenuse side.

Tangent- is the ratio of the opposite side opposite to the adjacent side.