My mathematical journey

What do I need to remember from before?

Multiplying to scale (NP3, NP10)

Reflective and rotational symmetry (GM2)

Properties of shapes (GM2)

What will I learn about in this unit?

Congruence and similarity

Congruent transformations: translation, reflection, rotation

Similar transformations: enlargement

Where does this lead?

Trigonometry (GM5)

Area and volume in similar solids (GM8)

Problems with congruence and similarity (GM11)

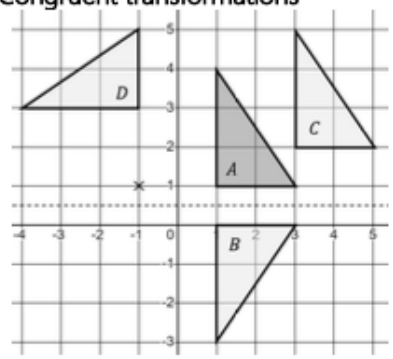
Transforming graphs (A15)

Key words and symbols: what I need to say and write accurately

Word	Explanation
congruent, ≅	identical in size and shape, but not necessarily orientation or direction
transformation	a mathematical change, using translation, rotation, reflection or enlargement
image	a shape *after* a transformation has happened
vector	a mathematical object that tells you how far to move and in what direction it can be shown with an arrow or with column notation e.g. this arrow and column vector both communicate "one left, two down" $\begin{pmatrix}-1\\-2\end{pmatrix}$ 
similar	same shape, all angles the same, but one an enlargement of the other (all corresponding sides in the same ratio)

Fingertip facts: what I need to learn by heart

Congruent transformations



A to **B** is a reflection in the line $y = \frac{1}{2}$.

A to **C** is a translation by the vector $\begin{pmatrix}2\\1\end{pmatrix}$

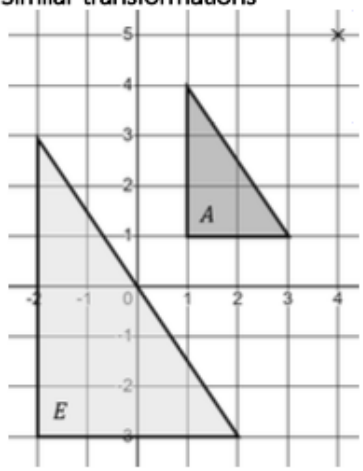
A to **D** is a rotation 90° anticlockwise around the centre $(-1, 1)$.

Reflections need a mirror line.

Translations need a vector.

Rotations need an angle, direction and centre.

Similar transformations



A to **E** is an enlargement of scale factor 2 from $(4, 5)$.

Enlargements need a scale factor and centre.