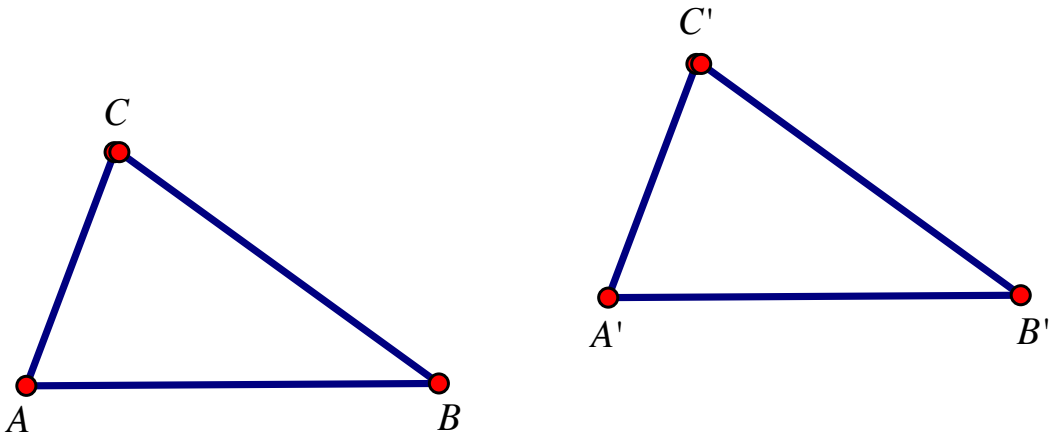
Transformations

Mappings & Congruence Mappings

Moving a figure around a plane is called mapping. In the figure below, ΔABC was moved (mapped) to a new position in the plane and the new triangle formed, ΔA'B'C' is called the image of ΔABC.



ΔABC is mapped into ΔA'B'C'

Mathematically we write,

ΔABC ——> ΔA'B'C'

A transformation is a mapping such that;

1. **each point in the plane has exactly one image**
2. **for each point in the plane there is exactly one preimage**

We have seen transformations in algebra when we moved graphs around the coordinate plane.

Transformations that maintain their same size and shape, they are called isometries or congruence mappings.

Isometry is a transformation that preserves distance and angle measure.

Looking at the figure above, the distance between AA', BB', and CC' are all the same and all the angles, respectively are congruent – have the same angle measure.

Again, looking at the figure below, the original figure is called the preimage and the final shape and position of the figure is called the image.