Question

Which of the following transformations will always produce a congruent figure?
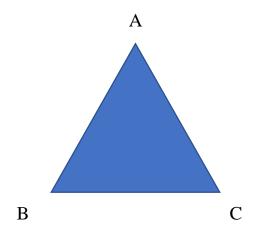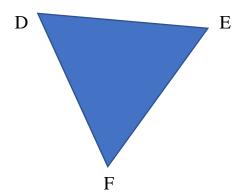
Solution

Two figures are called congruent or equal if there is an isometry that carries one figure to another. For example, in Euclidean geometry, two planar figures are called congruent if one of them can be translated into another by translation, rotation or mirror reflection.

Mathematically, a congruence of two objects is usually denoted by a symbol $\cong$. For example,

$$\Delta ABC \cong \Delta DEF$$

means that the triangles ABC and DEF are congruent (they have the same three sides).