

Pretend I have a triangle $\triangle ABC$, and another triangle $\triangle DEF$, and the two triangles are congruent.

I have only a compass, so I can't measure to find a midpoint, but I can do the equilateral triangle construction with two points to get a third point that is equidistant from them both.

Write me detailed instructions that will get me to do 2 rotations that together will map $\triangle ABC$ to $\triangle DEF$ so that A maps to D and \overline{AB} maps to \overline{DE}

Here's what you have to tell me for each rotation: you need to tell me a center (fixed point) of the rotation, (how to find it and what you're going to name it), and an angle of rotation (named using defined, named points).

Here's what you get from a rotation: If the center point of the rotation is R , and the angle is $\angle XRY$ then every point on ray \overline{RX} maps onto a point on ray \overline{RY} and if X' is a point on \overline{RY} such that $\overline{RX} \cong \overline{RX'}$ then X maps onto X' . Also, if Z is any point in the plane (not necessarily on \overline{RX}), and Z maps to Z' then $\angle ZRZ' \cong \angle XRY$.