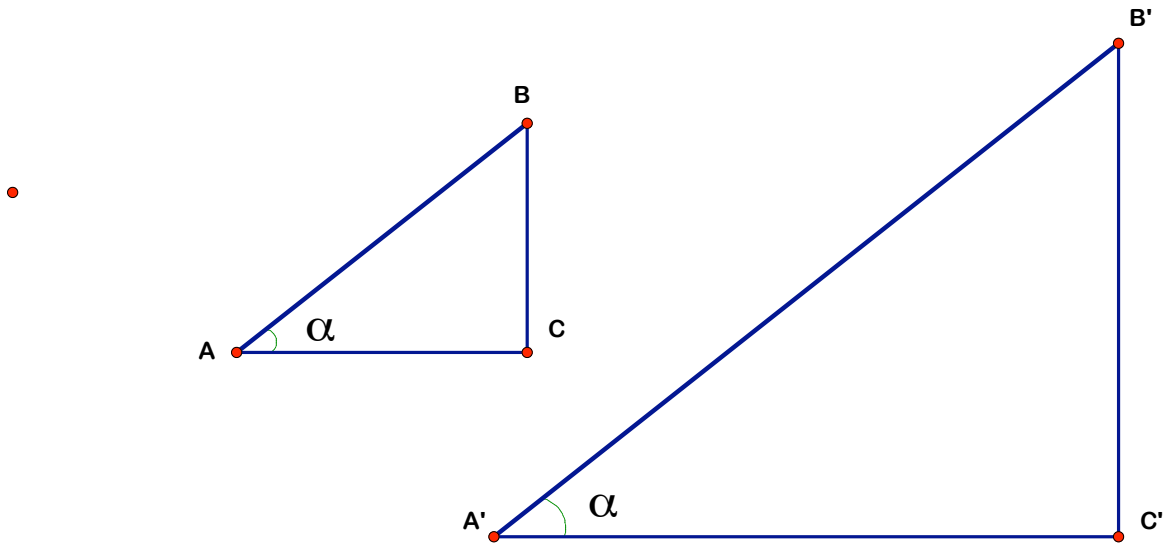
Theorem 49. If two right triangles have angle different from the right equal, then triangles are similar.

Proof: Right triangles always have one pair of angles equal (the right angles). If they have one more pair of equal angles, then by AA they are similar.



$\triangle ABC \sim \triangle A'B'C'$, hence
$|A'B'|=k|AB|$ and $|A'C'|=k|AC|$.
We see that

$$\frac{|AC|}{|AB|}=\frac{k|AC|}{k|AB|}=\frac{|A'C'|}{|A'B'|}$$

It means that the ratio

$$\frac{\text{side adjacent to the angle}}{\text{hypotenuse}}$$

does not depend on a triangle, but only on the angle α.