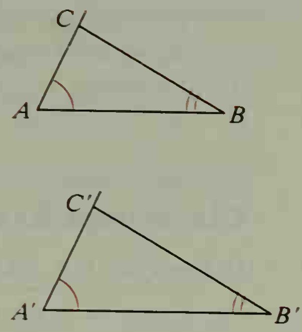


1. Draw any two segments $\overline{AB}$ and $\overline{A'B'}$.
2. Draw any angle at A and a congruent angle at A'. Draw any angle at B and a congruent angle at B'. Label points C and C' as shown. $\angle ACB \cong \angle A'C'B'$. (Why?)
3. Measure each pair of corresponding sides and compute an approximate decimal value for the ratio of their lengths:

$$\frac{AB}{A'B'} \qquad \frac{BC}{B'C'} \qquad \frac{AC}{A'C'}$$

4. Are the ratios computed in Step 3 approximately the same?

If you worked carefully, your answer in Step 4 was *yes*. Corresponding angles of the two triangles are congruent and corresponding sides are in proportion. By the definition of similar polygons, $\triangle ABC \sim \triangle A'B'C'$.

Whenever you draw two triangles with two angles of one triangle congruent to two angles of the other, you will find that the third angles are also congruent and that corresponding sides are in proportion.

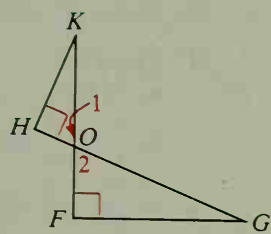
Postulate 15 *AA Similarity Postulate*

If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.

Example

Given: $\angle H$ and $\angle F$ are rt. $\angle$s.

Prove: $HK \cdot GO = FG \cdot KO$



Plan for Proof: You can prove that $HK \cdot GO = FG \cdot KO$ if you show that $\frac{HK}{FG} = \frac{KO}{GO}$. You can get this proportion if you show that $\triangle HKO \sim \triangle FGO$.

Proof:

Statements	Reasons
1. $\angle 1 \cong \angle 2$	1. Vertical $\angle$s are $\cong$.
2. $\angle H$ and $\angle F$ are rt. $\angle$s.	2. Given
3. $m\angle H = 90 = m\angle F$	3. Def. of a rt. $\angle$
4. $\angle H \cong \angle F$	4. Def. of $\cong$ $\angle$s
5. $\triangle HKO \sim \triangle FGO$	5. AA Similarity Postulate
6. $\frac{HK}{FG} = \frac{KO}{GO}$	6. Corr. sides of $\sim$ $\triangle$s are in proportion.
7. $HK \cdot GO = FG \cdot KO$	7. A property of proportions