Explorations

These exploratory exercises can be done using a computer with a program that draws and measures geometric figures.

Draw any triangle and a median of the triangle. Measure and record the lengths of the sides and the median, the measures of the angles, and the perimeter of the triangle.

Change the scale of your triangle. Remeasure and record the lengths of the sides and the median, the measures of the angles, and the perimeter of the triangle.

Compare the measurements of the corresponding angles of the two triangles. What do you notice?

Divide the length of each side of the original triangle by the length of the corresponding side of the second triangle. What do you notice?

What do you know about the two triangles?

Divide the length of the median of the original triangle by the length of the median of the second triangle. What do you notice?

Divide the perimeter of the original triangle by the perimeter of the second triangle. What do you notice?

Working with Similar Triangles

Objectives

1. Use the AA Similarity Postulate, the SAS Similarity Theorem, and the SSS Similarity Theorem to prove triangles similar.
2. Use similar triangles to deduce information about segments or angles.
3. Apply the Triangle Proportionality Theorem and its corollary.
4. State and apply the Triangle Angle-Bisector Theorem.

7-4 *A Postulate for Similar Triangles*

You can always prove that two triangles are similar by showing that they satisfy the definition of similar polygons. However, there are simpler methods. The following experiment suggests the first of these methods: Two triangles are similar whenever two pairs of angles are congruent.