

## 11.3 Angle-Angle Similarity

**Essential Question:** How can you determine when two triangles are similar?

**Learning Goal:** Students will be able to use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. **MAFS.8.G.1.5, MAFS.8.EE.2.6, MAFS.8.EE.3.7**

**Questions:**

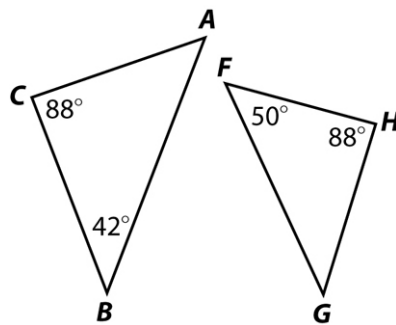
**Notes:**

### Discovering Angle-Angle Similarity

Similar figures have the same shape but may have different sizes. Two triangles are similar if their corresponding angles are congruent and the lengths of their corresponding sides are proportional.

### Using the AA Similarity Postulate

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

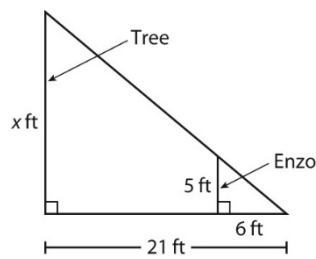


$\triangle ABC$  has angle measures  $42^\circ$ ,  $50^\circ$ ,  $88^\circ$ , and  $\triangle FGH$  has angle measures  $42^\circ$ ,  $50^\circ$ ,  $88^\circ$ . The triangles are similar because two angles in one triangle are congruent to two angles in the other triangle.

## Finding Missing Measures in Similar Triangles

Because corresponding angles are congruent and corresponding sides are proportional in similar triangles, you can use similar triangles to solve real-world problems.

A tree casts a shadow 21 feet long, while Enzo, who is 5 feet tall, casts a shadow 6 feet long.



$$\frac{X}{21} = \frac{5}{6}$$

$$\frac{6X}{6} = \frac{105}{6}$$

$$X = 17.5 \text{ ft}$$