Step 1 Measure and record the lengths of the line segments in millimeters and angles in degrees in the table.

$\triangle LPQ$		$\triangle LMN$	
$LP =$ 18 mm	$m\angle L =$ 78°	$LM =$ 9 mm	$m\angle L =$ 78°
$LQ =$ 21 mm	$m\angle P =$ 58°	$LN =$ 10.5 mm	$m\angle M =$ 58°
$PQ =$ 25 mm	$m\angle Q =$ 44°	$MN =$ 12.5 mm	$m\angle N =$ 44°

What do you notice about the measure of the corresponding angles of the triangles? The measures are equal.

Step 2 Express the lengths of the corresponding sides of the triangles as ratios.

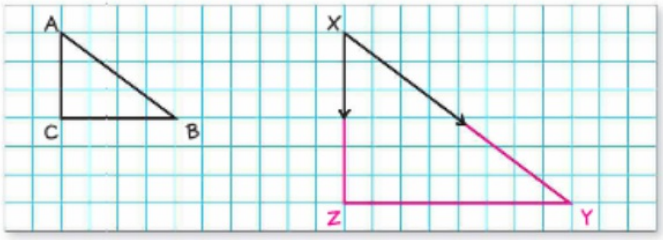
$\frac{LP}{LM} = \frac{18}{9}$ or 2 $\quad \frac{LQ}{LN} = \frac{21}{10.5}$ or 2 $\quad \frac{PQ}{MN} = \frac{25}{12.5}$ or 2

What do you notice about the ratios of the corresponding sides of the triangles? They are equal.

Work with a partner.

1. CCSS **Model with Mathematics** Triangle ABC is a right triangle with $m\angle A = 53°$. On the grid, draw and label a different right triangle, XYZ, using the given angle X, which also measures 53°. **Sample answer:**

Show your work.



What do you notice about the shape of the triangles? **Sample answer:** They appear to be the same shape.

Analyze and Reflect

Collaborate

For Exercises 2-4, refer to the triangles in Exercise 1.

2. What is the measure of $\angle B$? the measure of the angle that corresponds to $\angle B$ in $\triangle XYZ$? **37°; 37°**

3. Express the lengths of the corresponding sides of the triangles as ratios. **Sample answer:**

$\frac{AC}{XZ} = \frac{3}{6}$ or $\frac{1}{2}$ $\quad \frac{CB}{ZY} = \frac{4}{8}$ or $\frac{1}{2}$ $\quad \frac{AB}{XY} = \frac{5}{10}$ or $\frac{1}{2}$

4. What do you notice about the ratios? **They are equal.**

Create

On Your Own

5. CCSS **Reason Inductively** The two triangles in the Activity and in Exercise 1 are called *similar triangles*. Based on your discoveries, make a conjecture about the properties of similar triangles.

Sample answer: Corresponding angles in two similar triangles have the same measures, and the ratios of the corresponding sides are equal.

6. Inquiry HOW are two triangles related if they have the same shape but different sizes?

Sample answer: The triangles are similar.