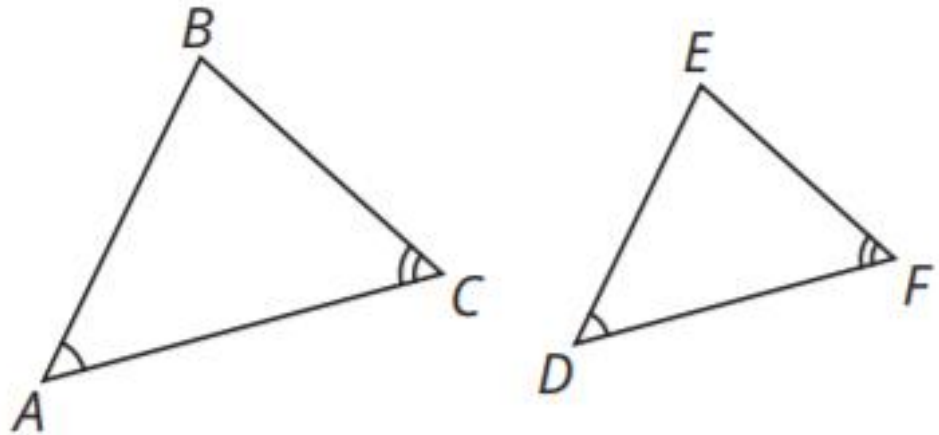
Warm Up

The first set of three ordered pairs forms a triangle. Determine whether the second three corresponding ordered pairs form a similar triangle. Justify your answers.

1. {(2, 2), (4, 2), (4, 4)}
   {(4, 4), (8, 4), (8, 8)}

2. {(2, 3), (4, 5), (3, 9)}
   $\left\{\left(\frac{2}{3}, 1\right), \left(\frac{4}{3}, \frac{5}{3}\right), (1, 3)\right\}$

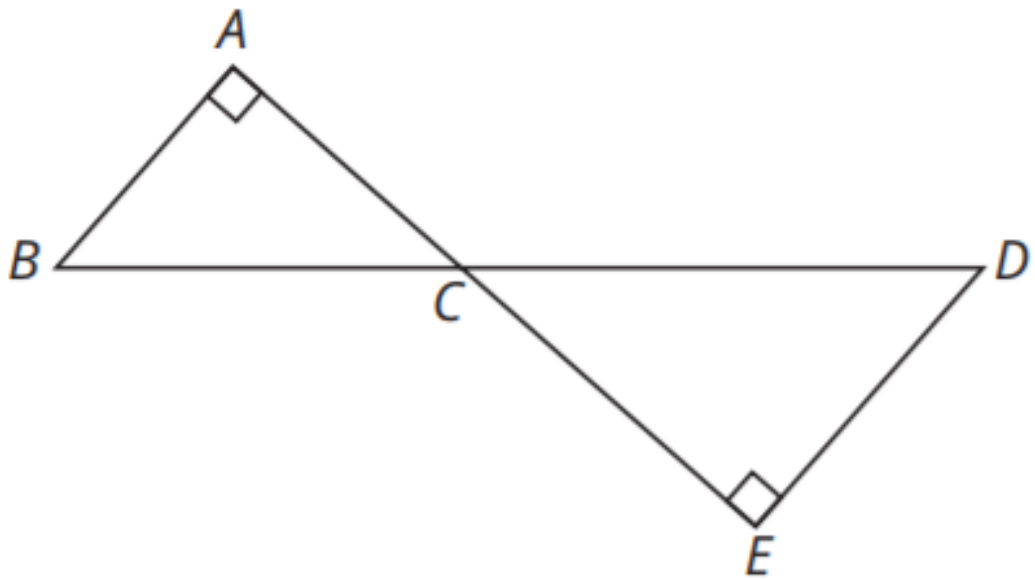
The **Angle-Angle Similarity Theorem** states: "If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar."



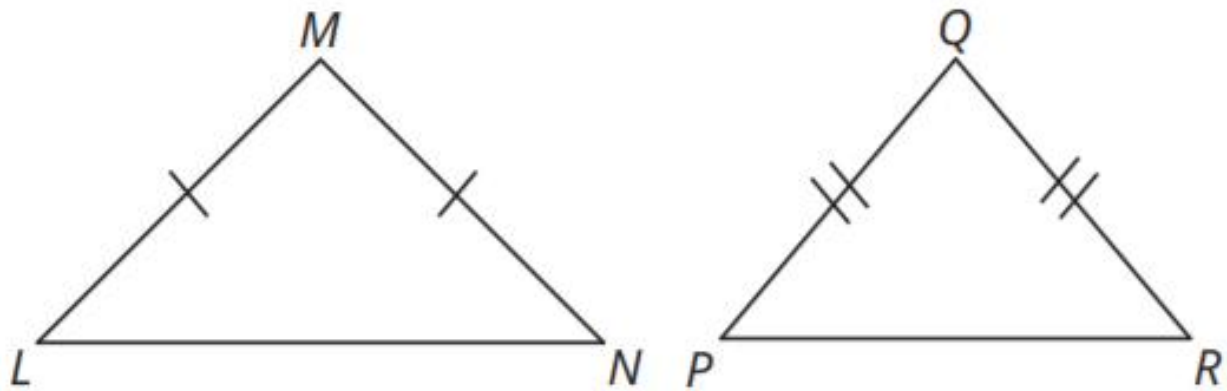
If $m\angle A = m\angle D$ and $m\angle C = m\angle F$, then $\triangle ABC \sim \triangle DEF$.

Worked Example

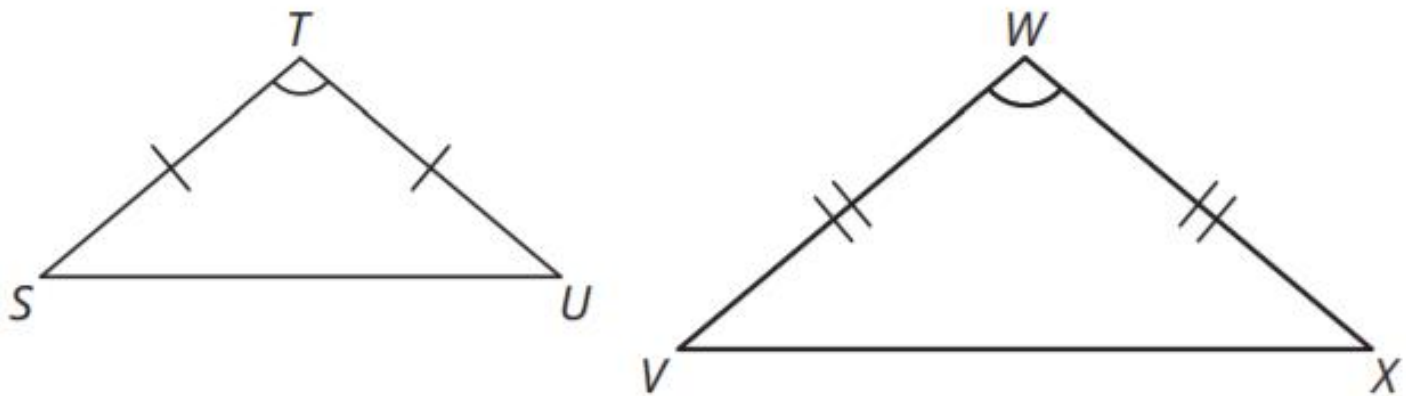
You can apply the Angle-Angle Similarity Theorem to verify that two triangles are similar.



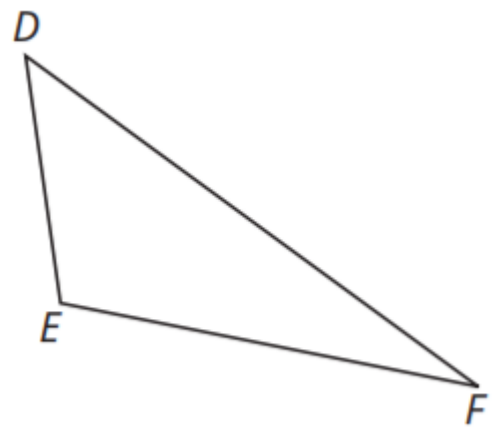
5. The triangles shown are isosceles triangles. Do you have enough information to show that the triangles are similar? Explain your reasoning.



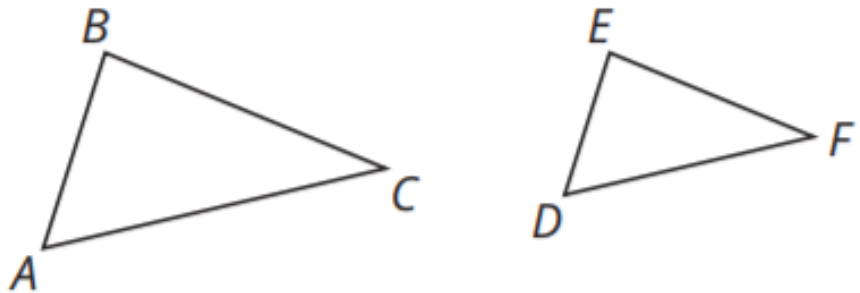
6. The triangles shown are isosceles triangles. Do you have enough information to show that the triangles are similar? Explain your reasoning.



2. Construct $\triangle D'E'F'$ by doubling the lengths of sides $\overline{DE}$, $\overline{EF}$, and $\overline{FD}$. Construct the new side lengths separately, and then construct the triangle. Do not duplicate angles.

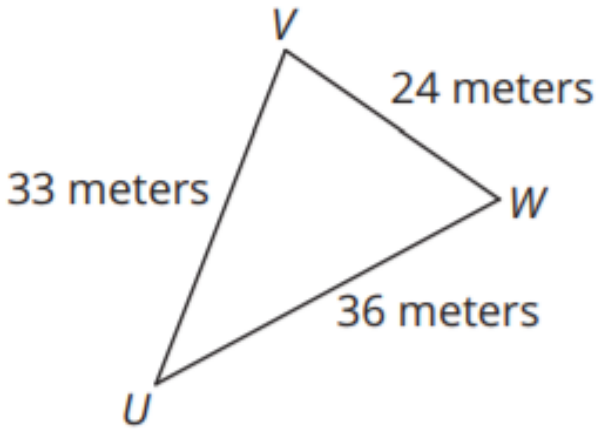


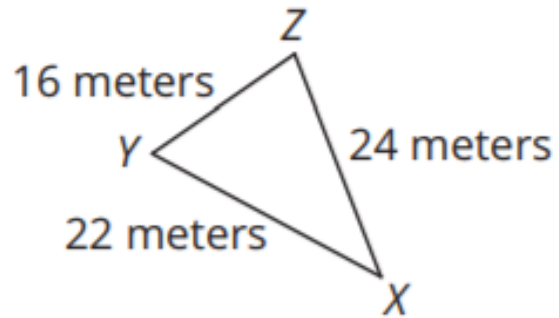
The **Side-Side-Side Similarity Theorem** states: "If all three corresponding sides of two triangles are proportional, then the triangles are similar."



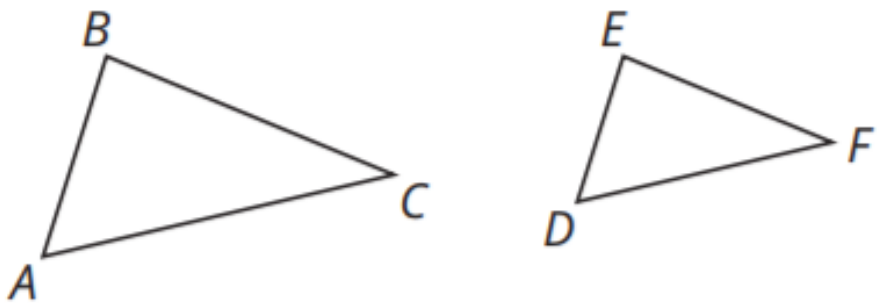
If $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$, then $\triangle ABC \sim \triangle DEF$.

5. Determine whether $\triangle UVW$ is similar to $\triangle XYZ$. If so, use symbols to write a similarity statement.





The **Side-Angle-Side Similarity Theorem** states: "If two of the corresponding sides of two triangles are proportional and the included angles are congruent, then the triangles are similar."



If $\frac{AB}{DE} = \frac{AC}{DF}$ and $\angle A \cong \angle D$, then $\triangle ABC \sim \triangle DEF$.