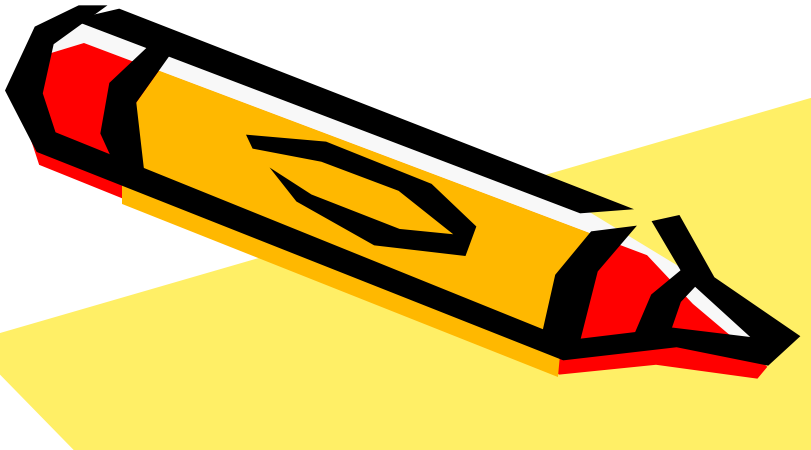
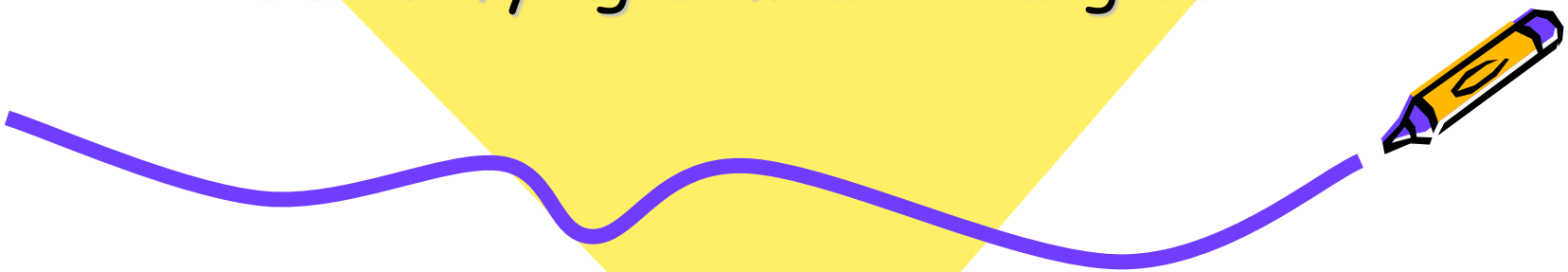


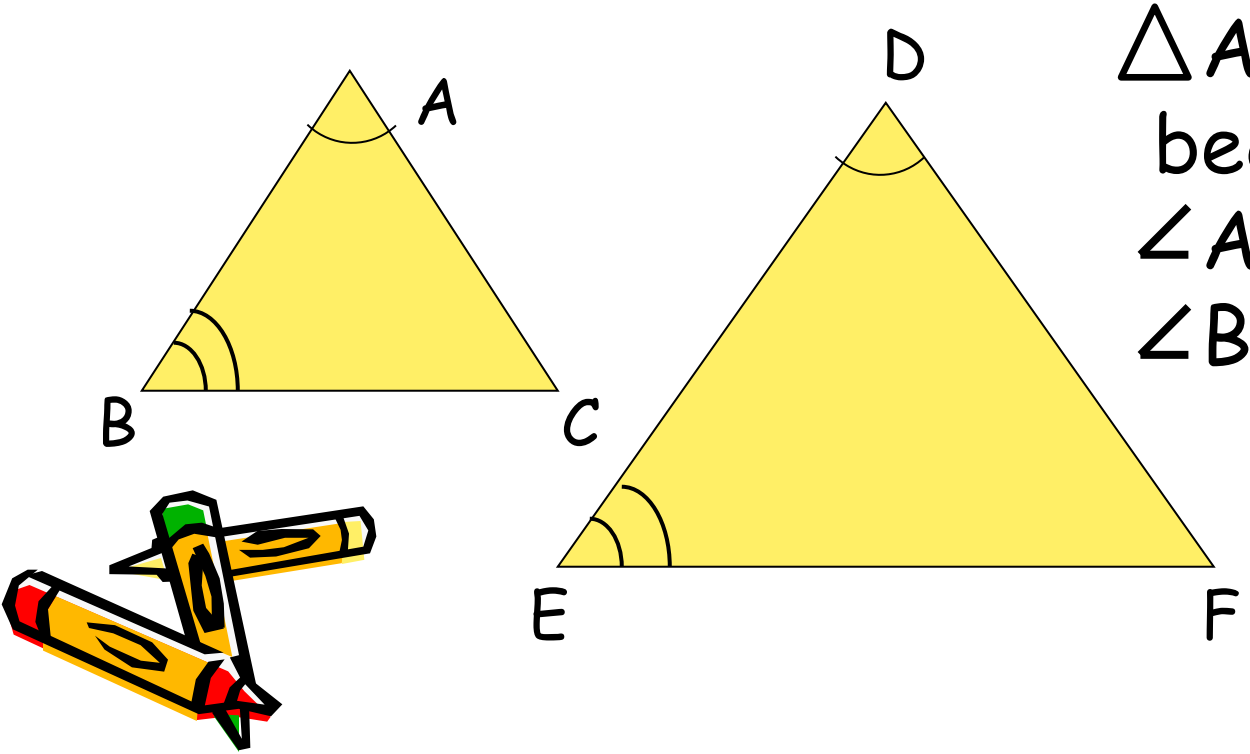
Geometry

Identifying Similar Triangles



Angle- Angle (AA) Similarity Postulate

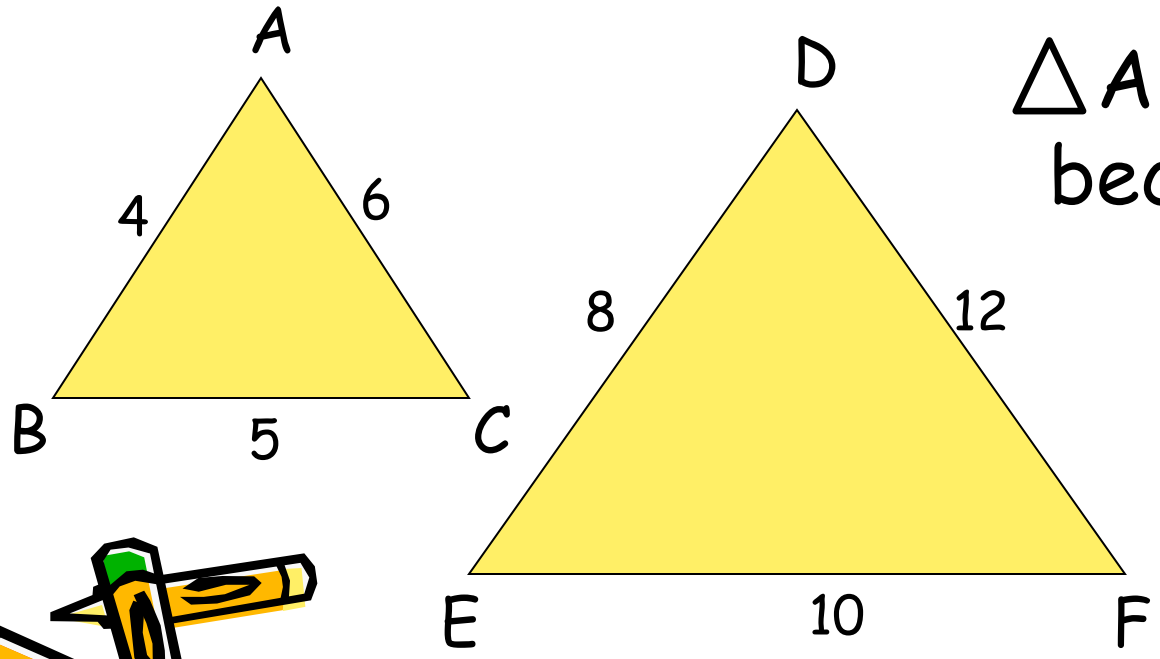
If two angles of one triangle are congruent to two angles of another triangle, then the two triangles are similar.



$\triangle ABC \sim \triangle DEF$ because $\angle A \cong \angle D$ and $\angle B \cong \angle E$

Side-Side-Side (SSS) Similarity

If all three sides of one triangle are proportional to all three side of another triangle, then the triangles are similar (test for proportionality or scale factor, but test all three sides).



$\triangle ABC \sim \triangle DEF$ because

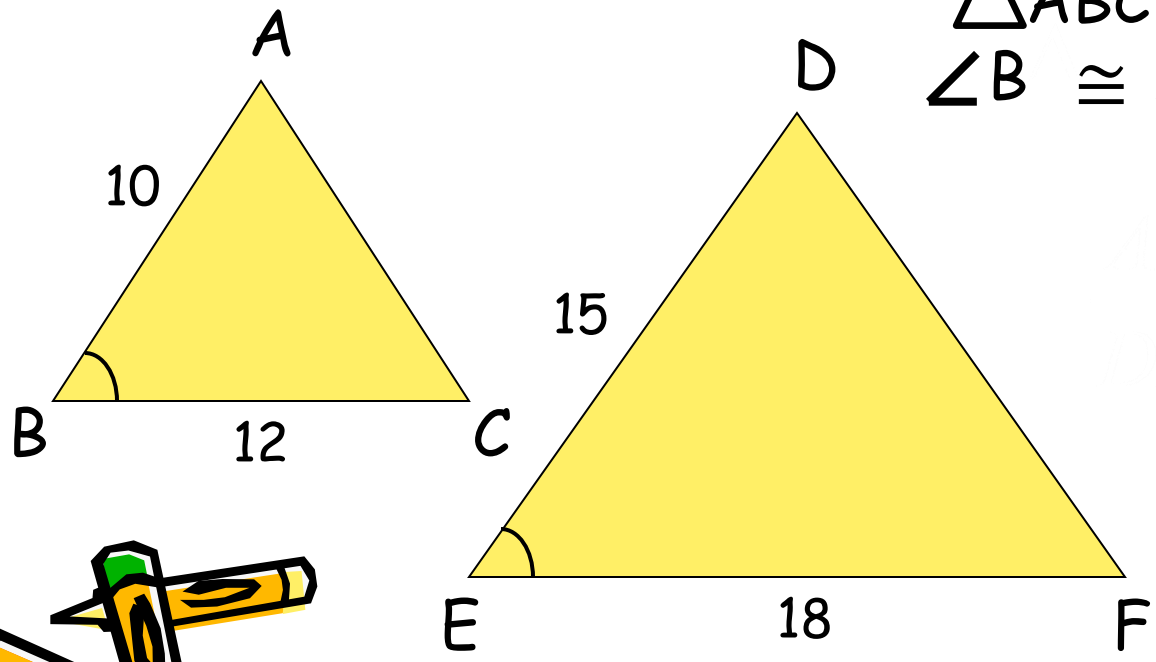
$$\frac{AB}{ED} = \frac{AC}{DF} = \frac{BC}{EF}$$

$$\frac{4}{8} = \frac{6}{12} = \frac{5}{10}$$

$$\frac{1}{2} = \frac{1}{2} = \frac{1}{2}$$

Side-Angle-Side (SAS) Similarity

If two sides of a triangle are proportional to two sides of another triangle, and the included angles are congruent, then the triangles are similar.



$\triangle ABC \sim \triangle DEF$ because $\angle B \cong \angle E$, and

$$\frac{AB}{DE} = \frac{BC}{EF}$$

$$\frac{10}{15} = \frac{12}{18}$$

$$\frac{2}{3} = \frac{2}{3}$$

sides are proportional

Practice

Use the diagram to complete the statement.

1. $\triangle MON \sim$?

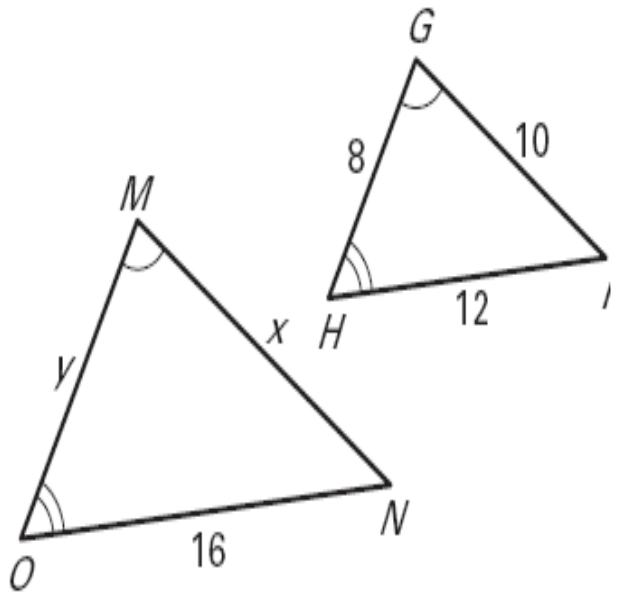
2. $\frac{MN}{?} = \frac{ON}{?} = \frac{MO}{?}$

3. $\frac{16}{12} = \frac{?}{10}$

4. $\frac{12}{16} = \frac{?}{y}$

5. $x =$?

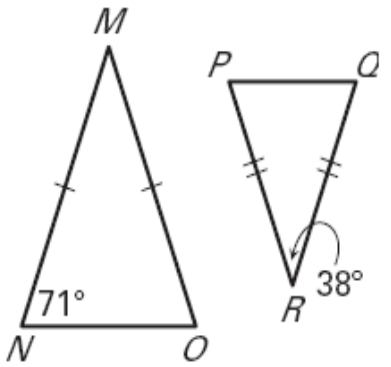
6. $y =$?



Practice

Determine whether the triangles can be proved similar. If they are similar, write a similarity statement. *Explain* your reasoning.

13.



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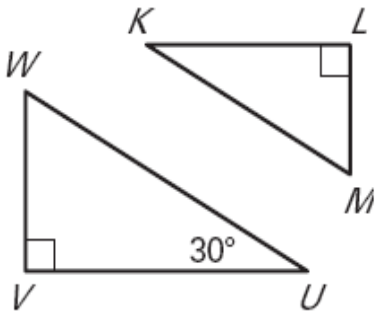

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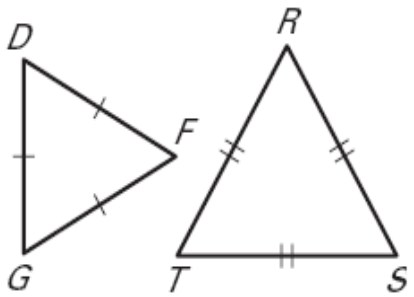

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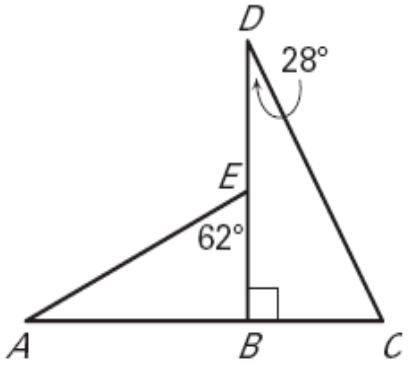

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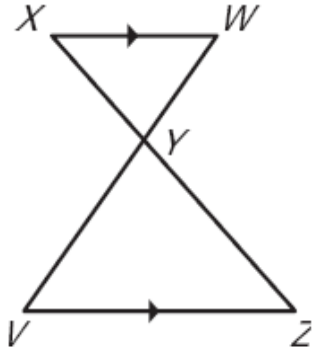

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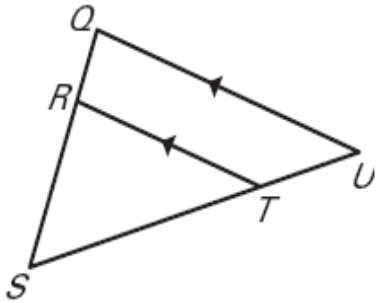
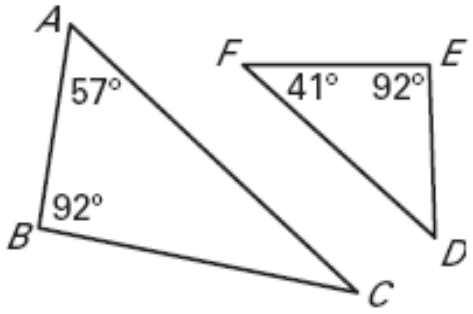


Practice

Are the triangles similar? If so, state the similarity and the postulate or theorem that justifies your answer.

10.



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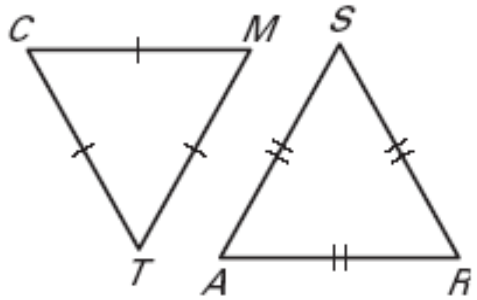

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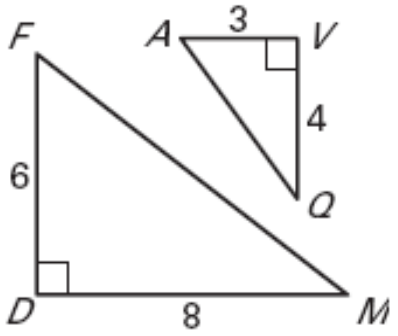

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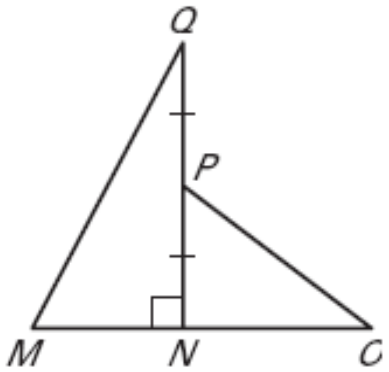

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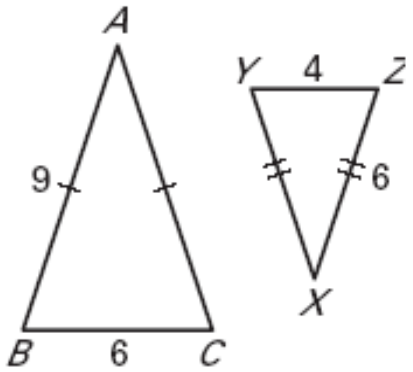

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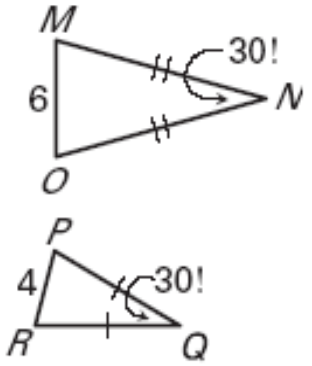
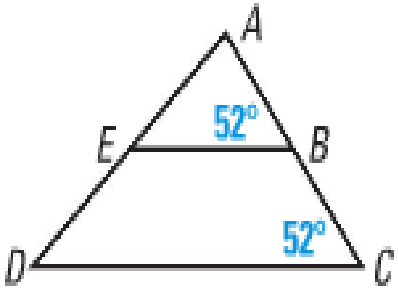
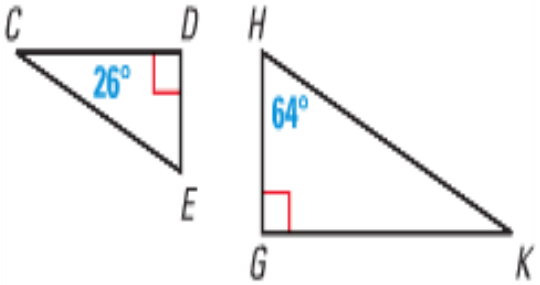
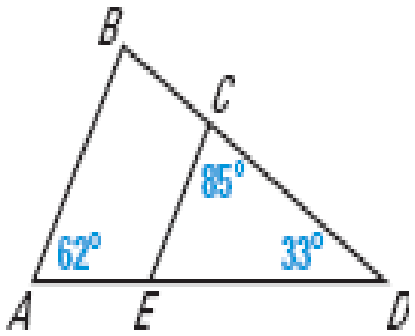


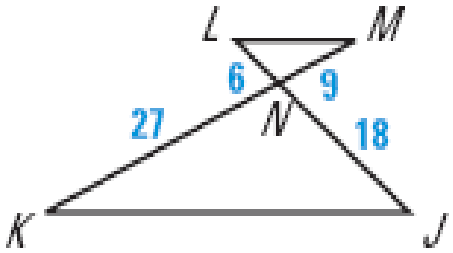
Practice

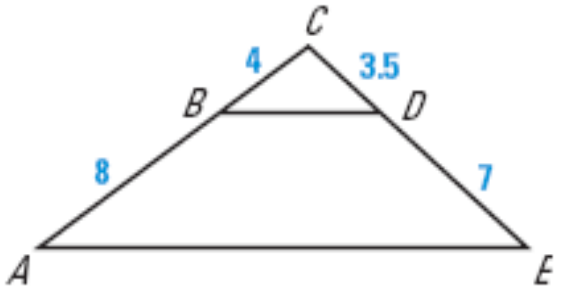
Determine if each pair of triangles are similar. Write a triangle similarity statement if appropriate. Explain you answer.











Practice

Determine if each pair of triangles are similar. Write a triangle similarity statement if appropriate. Explain your answer.