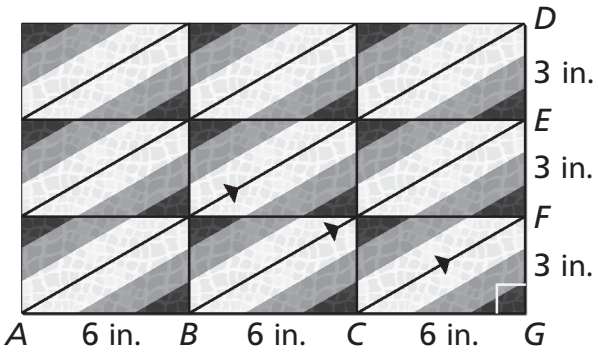
8.2 Start Thinking

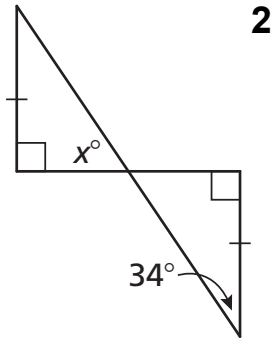
The diagram shows the layout for a quilting triangle. If you know the measure of $\angle A$ is 30°, what conclusions can you make about the other angles in the design?



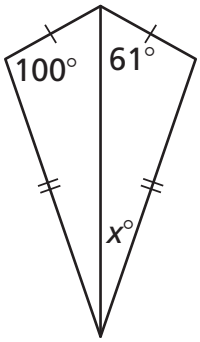
8.2 Warm Up

Find the value of *x*.

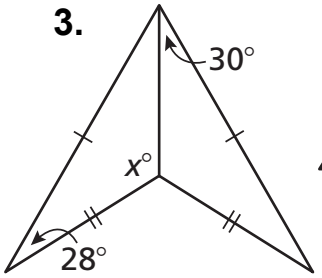
1.



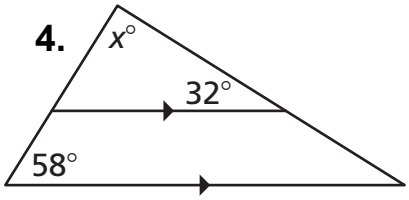
2.



3.

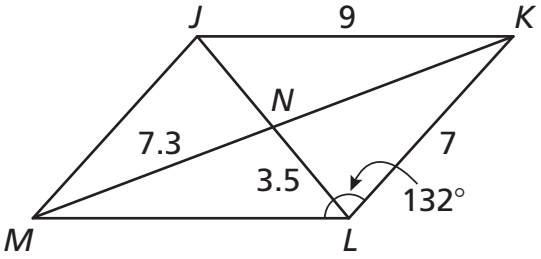


4.



8.2 Cumulative Review Warm Up

Find the indicated measure in $\square JKLM$.



1. ML

2. MJ

3. JN

4. MK

5. $m\angle MJK$

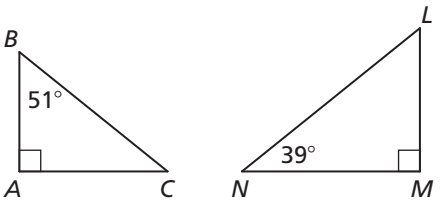
6. $m\angle LMJ$

Name_____ Date _____

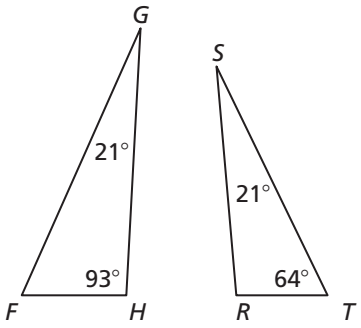
8.2 Practice A

In Exercises 1 and 2, determine whether the triangles are similar. If they are, write a similarity statement. Explain your reasoning.

1.

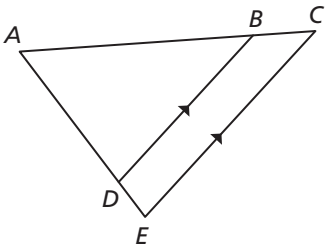


2.

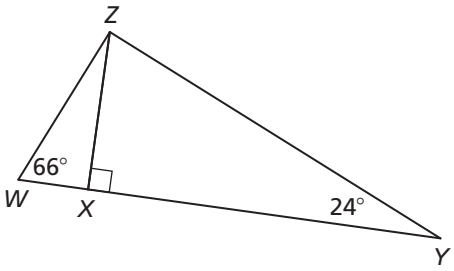


In Exercises 3 and 4, show that the two triangles are similar.

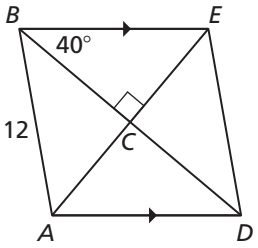
3. $\triangle ABD$ and $\triangle ACE$



4. $\triangle WXZ$ and $\triangle ZXY$



5. In the diagram, $\triangle ABC \sim \triangle EDC$.



a. Is $\overline{AB} \parallel \overline{DE}$? Explain your reasoning.

b. Show that $\triangle ACD \sim \triangle ECB$.

c. Find $m\angle CAD$.

d. Find ED.

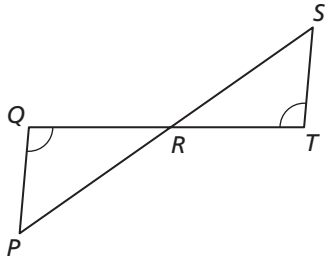
e. Find AD. Explain your reasoning.

In Exercises 6 and 7, is it possible for $\triangle ABC$ and $\triangle XYZ$ to be similar? Explain your reasoning.

6. $m\angle A = 43°$, $m\angle B = 61°$, $m\angle Y = 61°$, and $m\angle Z = 74°$

7. $\angle A$ and $\angle X$ are right angles and $\angle B \cong \angle Z$.

8. Use the figure to write a two-column proof.



Given: $\angle Q \cong \angle T$

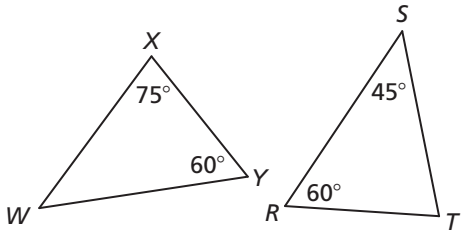
Prove: $\overline{PQ} \parallel \overline{ST}$

Name _____ Date _____

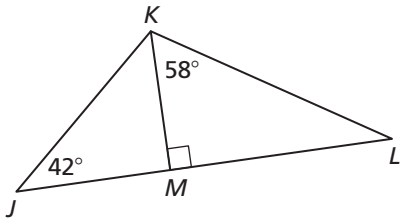
8.2 Practice B

In Exercises 1 and 2, determine whether the triangles are similar. If they are, write a similarity statement. Explain your reasoning.

1.

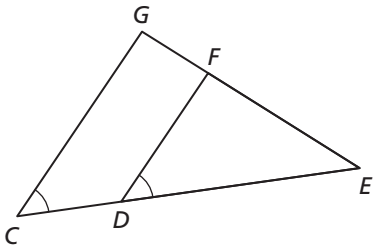


2.

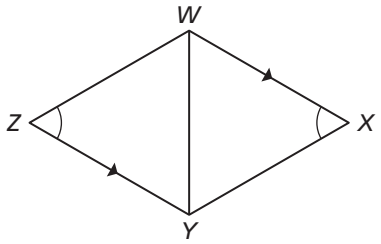


In Exercises 3 and 4, show that the two triangles are similar.

3. $\triangle ECG$ and $\triangle EDF$



4. $\triangle XWY$ and $\triangle ZYW$



In Exercises 5 and 6, is it possible for $\triangle ABC$ and $\triangle XYZ$ to be similar? Explain your reasoning.

5. $\angle A$ and $\angle X$ are supplementary and $\angle B$ and $\angle Z$ are complementary.

6. $m\angle A = 75°$ and $m\angle Z = 105°$

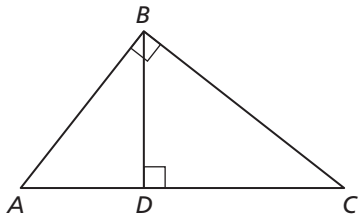
7. Your friend claims that if you know three angles of one quadrilateral are congruent to three angles of another quadrilateral, then the two quadrilaterals are similar. Is your friend correct? Explain your reasoning.

8. The height of the Empire State Building is 1250 feet tall. Your friend, who is 6 feet 3 inches tall, is standing nearby and casts a shadow that is 33 inches long. What is the length of the shadow of the Empire State Building?

9. Use the figure to write a two-column proof.

Given: $\angle ABC$ and $\angle BDC$ are right angles.

Prove: $\angle A \cong \angle CBD$

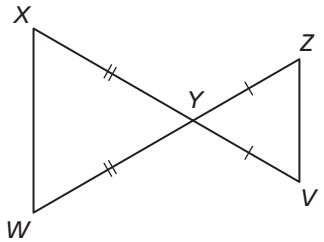


10. Use the figure to write a two-column proof.

Given: $\overline{YZ} \cong \overline{YV}$

$\overline{XY} \cong \overline{WY}$

Prove: $\triangle XYW \sim \triangle VYZ$

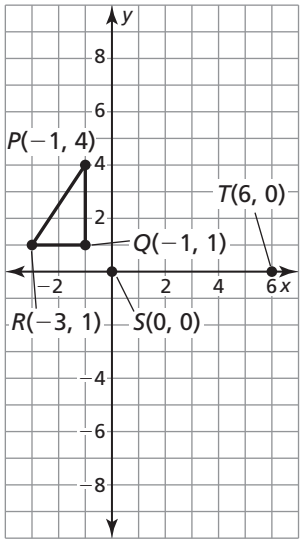


Name_____ Date _____

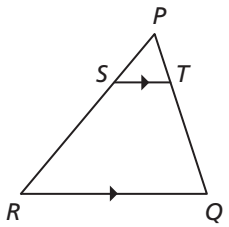
8.2 Enrichment and Extension

Proving Triangle Similarity by AA

In Exercises 1–6, use the diagram to find two pairs of coordinates for the points that satisfy the similarity statement.

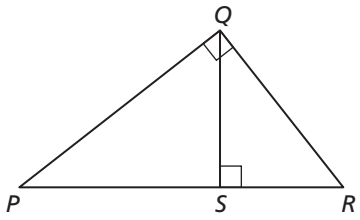


1. Given $\triangle PQR \sim \triangle STU$, find the coordinates of U.
2. Given $\triangle PQR \sim \triangle VST$, find the coordinates of V.
3. Given $\triangle PQR \sim \triangle SWT$, find the coordinates of W.
4. Given $\triangle PQR \sim \triangle TSX$, find the coordinates of X.
5. Given $\triangle PQR \sim \triangle YTS$, find the coordinates of Y.
6. Given $\triangle PQR \sim \triangle TZS$, find the coordinates of Z.
7. If $PT = x$, $PQ = 3x$, and $SR = \frac{8}{x}$, find PS in terms of x. Explain your reasoning.

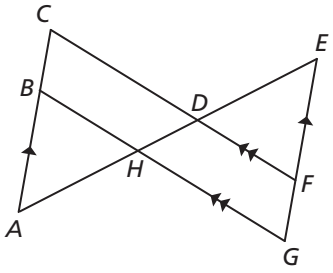


In Exercises 8 and 9, use the diagram and the information given to complete a two-column proof.

8. **Given:** $\angle PQR$ is a right angle.
   $\overline{QS}$ is the altitude of $\triangle PQR$ drawn from the right angle.
   Prove: $\triangle PSQ \sim \triangle QSR$



9. **Given:** $\overline{AC} \parallel \overline{GE}$
   $\overline{BG} \parallel \overline{CF}$
   Prove: $\triangle ABH \sim \triangle EFD$



Name _____ Date _____

8.2 Puzzle Time

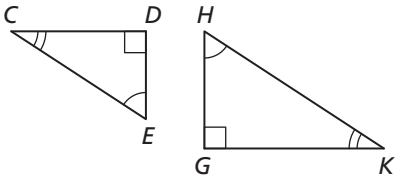
What Gets Wetter The More It Dries?

Write the letter of each answer in the box containing the exercise number.

Complete the sentence.

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

Use the diagram.

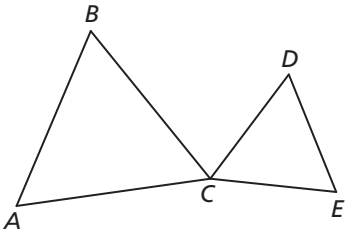


2. If $m\angle C = 36°$, then $m\angle H = 54°$. True or false?

3. $\triangle EDC \sim \triangle$_____

4. If $m\angle E = 73°$, find $m\angle K$.

Use the diagram.



5. $m\angle A = 42°$, $m\angle D = 95°$, $m\angle E = 42°$, $\angle B \cong \angle D$; Find $m\angle ACB$.

6. $m\angle A = m\angle E = m\angle ACB = m\angle ECD = 59°$; Find $m\angle D$.

Answers

K. 73°

L. 17°

U. false

T. 62°

A. congruent

M. right angle

W. similar

E. 43°

I. *EDC*

O. true

D. 42°

A. *HGK*

B. *KGH*

3		6	2	1	5	4