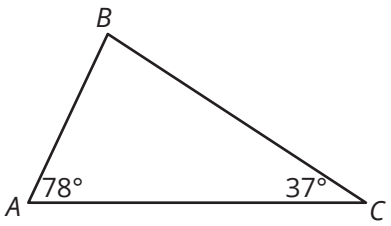
Skills Practice

Name _____ Date _____

I. Triangle Sum and Exterior Angle Theorems

A. Determine the measure of the unknown angle in each triangle.

1.



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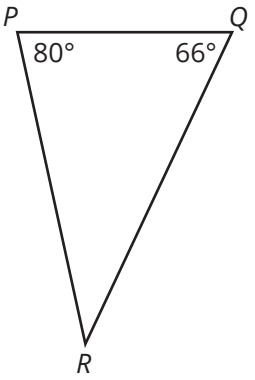

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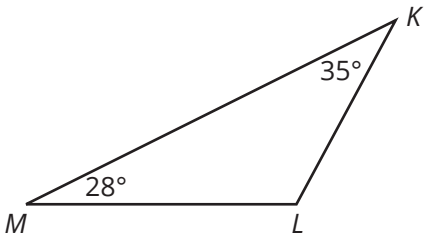

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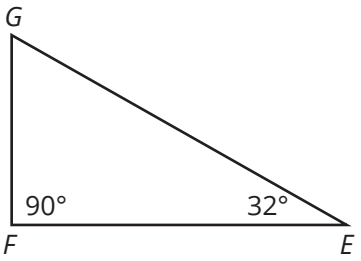

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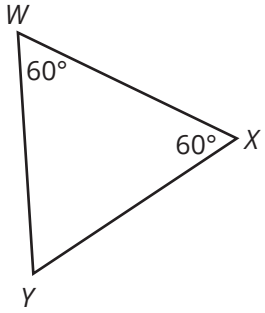

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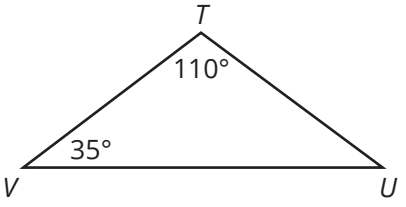
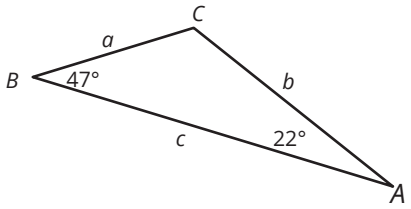


B. Determine the measure of each unknown angle. List the side lengths from shortest to longest for each diagram. Explain your reasoning.

1.



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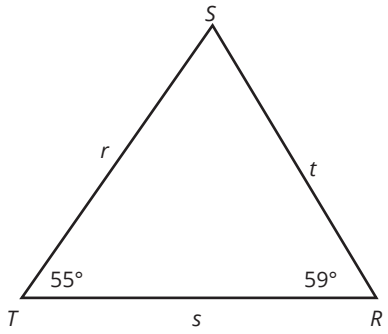

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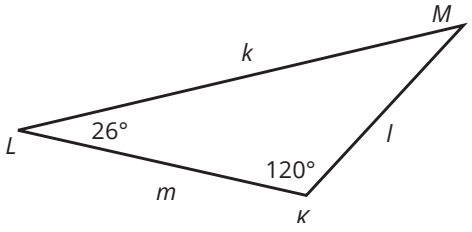

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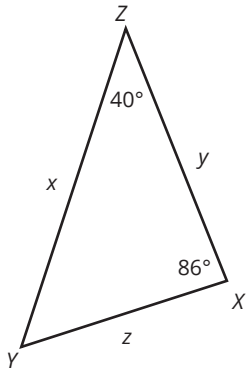

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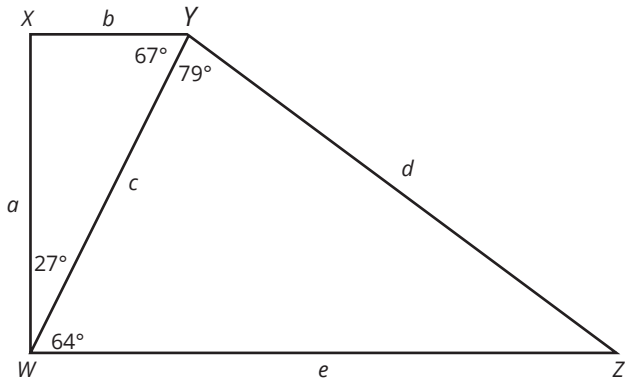

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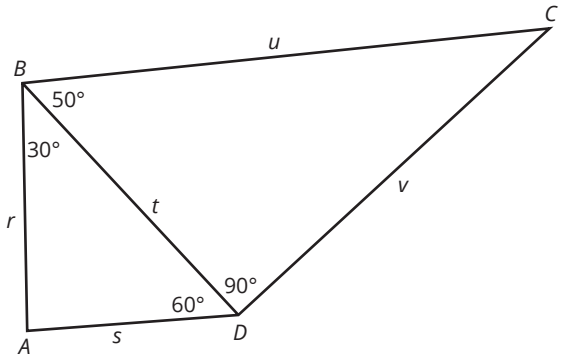
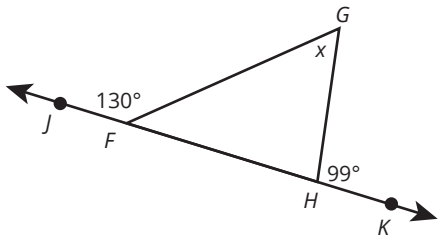


C. Solve for *x* in each diagram.

1.



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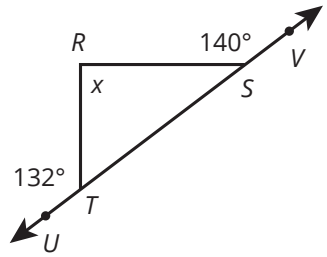

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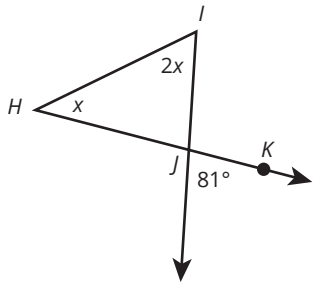

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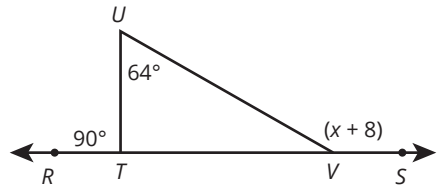

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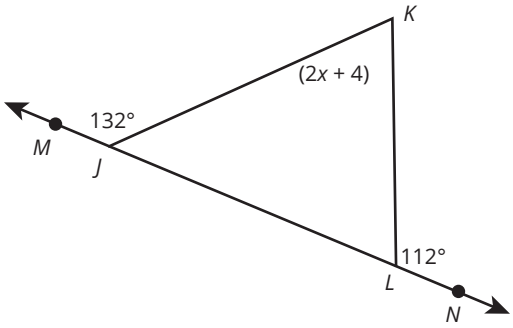

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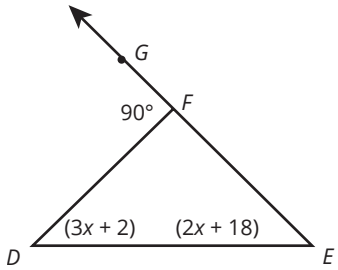
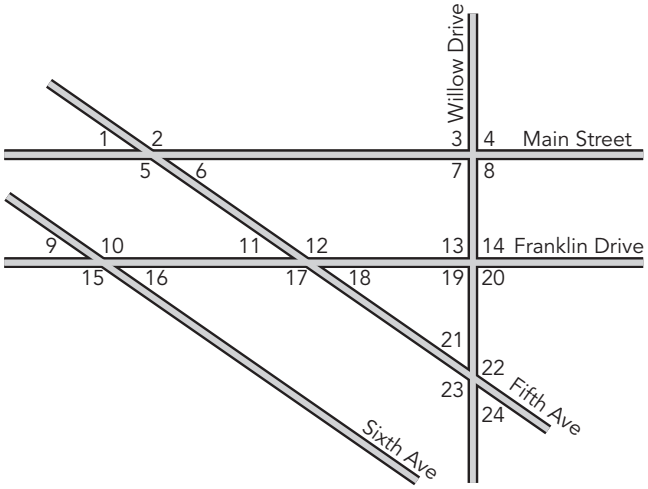


II. Angle Relationships Formed by Lines Intersected by a Transversal

A. Use the map to give an example of each relationship.



1. congruent angles

2. vertical angles

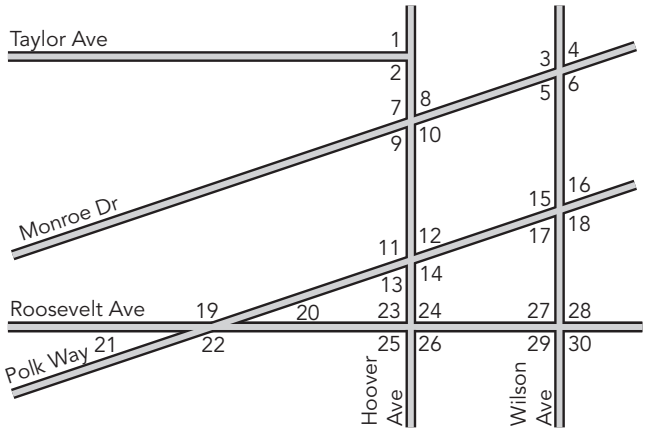
3. supplementary angles

4. linear pair

5. adjacent angles

6. corresponding angles

B. Use the map to answer each question. Assume the streets extend beyond the edges of the map. Explain your reasoning.



1. Identify each street that is a transversal to Hoover and Wilson.

2. Identify each street that is not a transversal to Hoover and Wilson.

3. Identify each street that is a transversal to Monroe and Polk.

4. Identify each street that is not a transversal to Monroe and Polk.

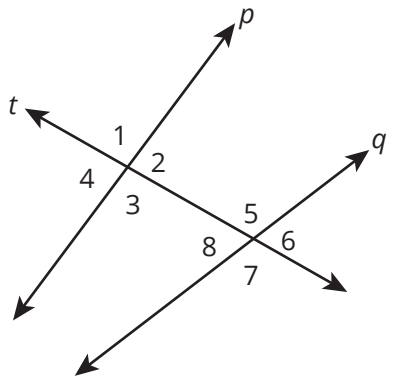
5. Identify all the angles that are same-side exterior to $\angle 11$.

6. Identify all the angles that are alternate interior to $\angle 11$.

7. Identify all the angles that are corresponding to $\angle 11$.

8. Identify all the angles that are vertical to $\angle 11$.

C. In the diagram, transversal *t* intersects lines *p* and *q*. Classify each pair of angles as *vertical*, *linear*, *corresponding*, *same-side exterior*, *same-side interior*, *alternate interior*, or *alternate exterior.*



1. angle 1 and angle 2

2. angle 1 and angle 3

3. angle 1 and angle 6

4. angle 3 and angle 7

5. angle 2 and angle 8

6. angle 1 and angle 7

7. angle 4 and angle 7

8. angle 6 and angle 8

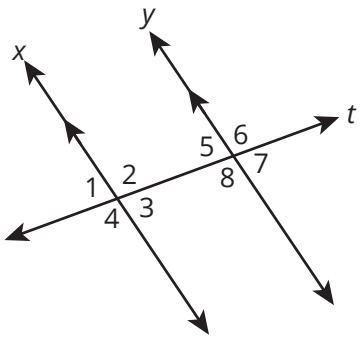
9. angle 3 and angle 4

10. angle 2 and angle 6

11. angle 2 and angle 5

12. angle 3 and angle 5

D. Use the diagram to answer each question.



1. Identify the angles that are congruent to ∠6.

2. Identify the angles that are supplementary to ∠6.

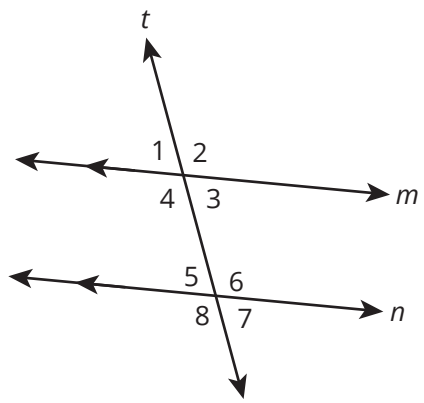
3. Identify the angles that are neither congruent nor supplementary to ∠6.

4. Identify the angles that are congruent to ∠3.

5. Identify the angles that are supplementary to ∠3.

6. Identify the angles that are neither congruent nor supplementary to ∠3.

E. In the diagram, transversal t intersects parallel lines m and n. Suppose that the measure of $\angle 4$ is $106°$. Classify the given angle pair. Then determine each measure.



1. $\angle 4$ and $\angle 1$, $m\angle 1 =$ _____

2. $\angle 4$ and $\angle 2$, $m\angle 2 =$ _____

3. $\angle 4$ and $\angle 3$, $m\angle 3 =$ _____

4. $\angle 4$ and $\angle 8$, $m\angle 8 =$ _____

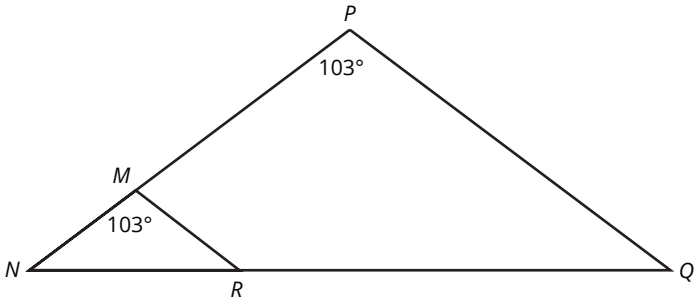
5. $\angle 4$ and $\angle 5$, $m\angle 5 =$ _____

6. $\angle 5$ and $\angle 7$, $m\angle 7 =$ _____

III. The Angle-Angle Similarity Theorem

A. Use the Angle-Angle Similarity Theorem to explain how the triangles are similar.

1.



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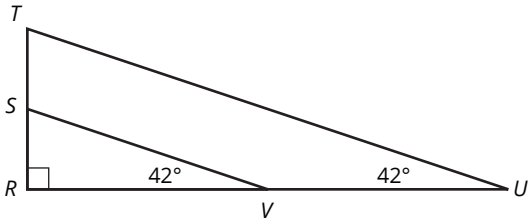

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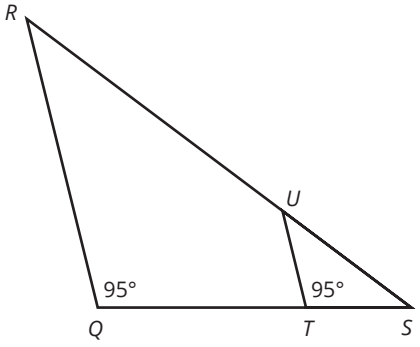

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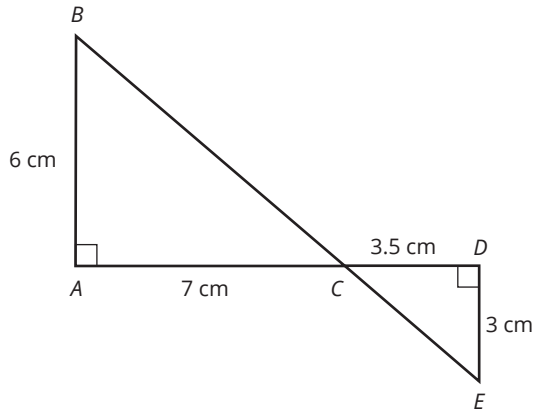
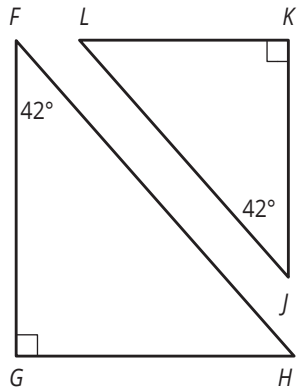
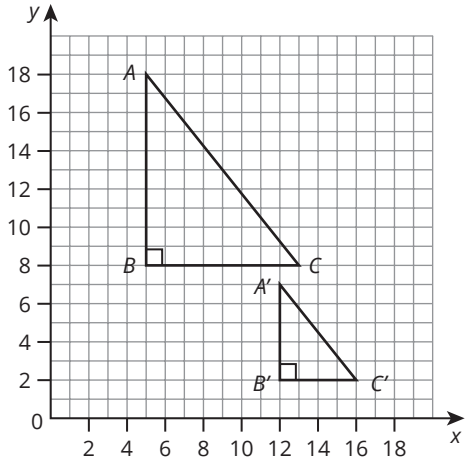


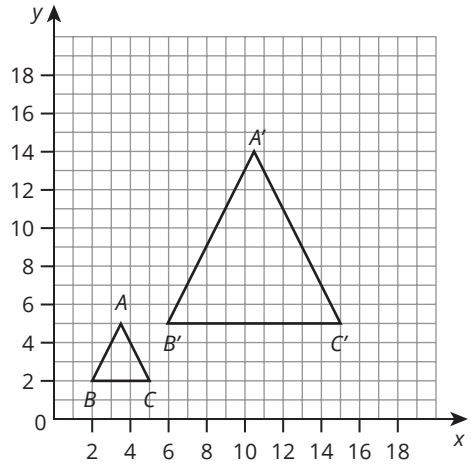
5.



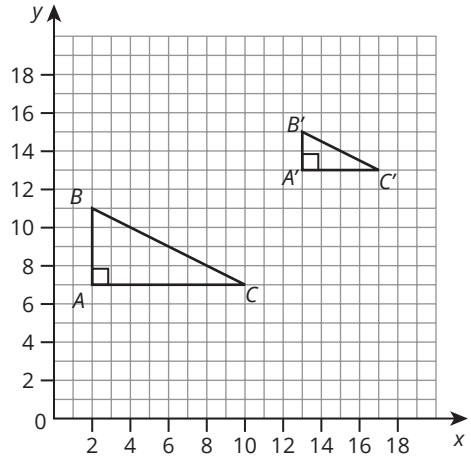
6. Use patty paper or a protractor to show that if ΔABC and $\Delta A'B'C'$ are similar triangles.



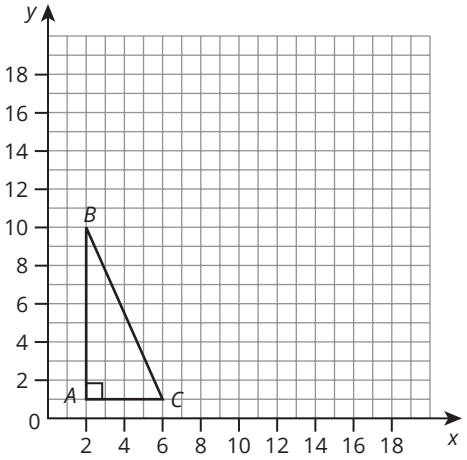
7. Use patty paper or a protractor to show that if ΔABC and $\Delta A'B'C'$ are similar triangles.



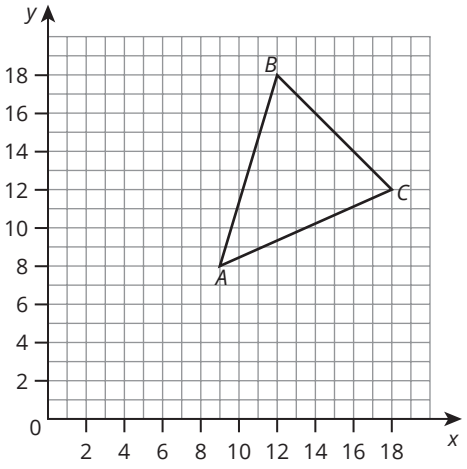
8. Use patty paper or a protractor to show that if ΔABC and $\Delta A'B'C'$ are similar triangles.



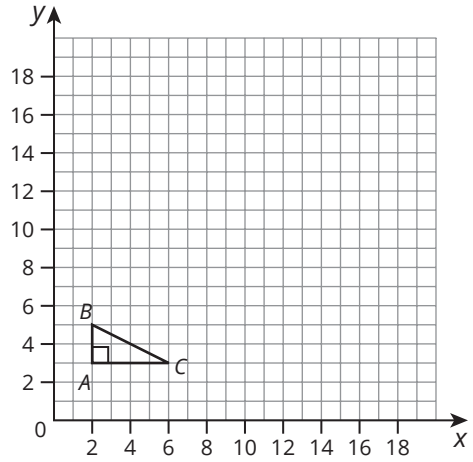
9. Dilate Δ*ABC* to form Δ*DEF* using the origin as the center of dilation and a scale factor of 2. Show that Δ*ABC* is similar to Δ*DEF* using patty paper or a protractor.



10. Dilate Δ*ABC* to form Δ*DEF* using the origin as the center of dilation and a scale factor of $\frac{1}{2}$. Show that Δ*ABC* is similar to Δ*DEF* using patty paper or a protractor.



11. Dilate ΔABC to form ΔDEF using the origin as the center of dilation and a scale factor of 2. Show that ΔABC is similar to ΔDEF using patty paper or a protractor.



12. Dilate ΔABC to form ΔDEF using the origin as the center of dilation and a scale factor of $\frac{1}{4}$. Show that ΔABC is similar to ΔDEF using patty paper or a protractor.