Assignment

Write

Write the term that best completes each statement.

1. The _____ states that the sum of the measures of the interior angles of a triangle is 180°.
2. The _____ states that the measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles of the triangle.
3. The _____ are the two angles that are non-adjacent to the specified exterior angle.
4. A(n) _____ is formed by extending a side of a polygon.

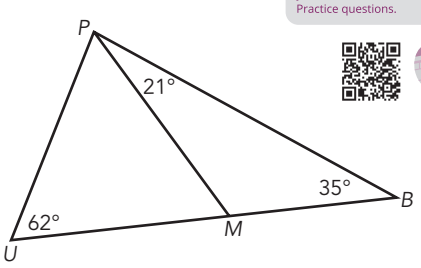
Remember

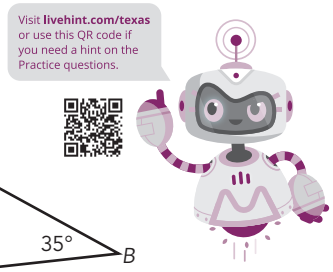
The sum of the measures of the interior angles of a triangle is 180°.

The measure of the exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles of the triangle.

Practice

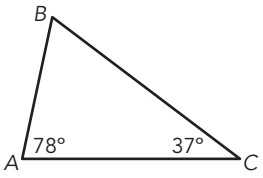
1. Use the figure shown to answer each question.
   a. Explain how you can use the Exterior Angle Theorem to calculate the measure of $\angle PMU$.
   b. Calculate the measure of $\angle PMU$.
   c. Explain how you can use the Triangle Sum Theorem to calculate the measure of $\angle UPM$.
   d. Calculate the measure of $\angle UPM$.
   e. List the sides of $\triangle PMB$ in order from shortest to longest. Explain how you determined your answer.
   f. List the sides of $\triangle PUB$ in order from shortest to longest. Explain how you determined your answer.





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

a.



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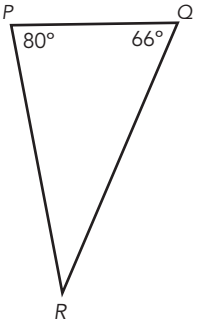

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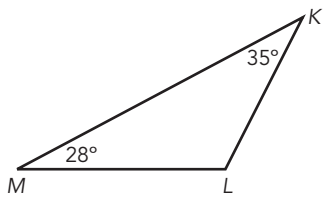
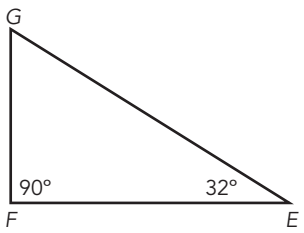
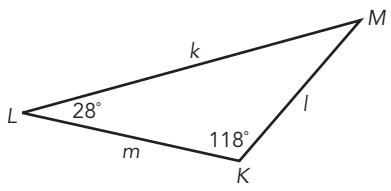


d.



3. List the side lengths from shortest to longest for each diagram.

a.



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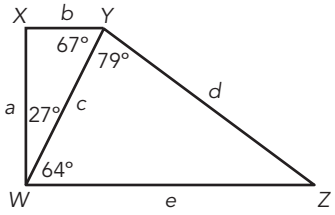
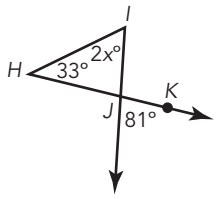


4. Determine the value of x in each diagram.

a.



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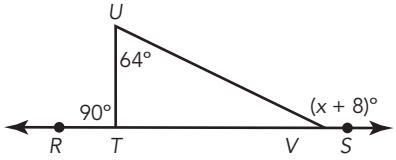

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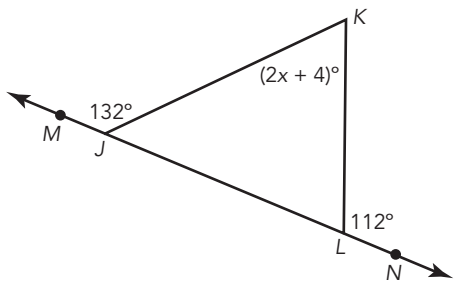
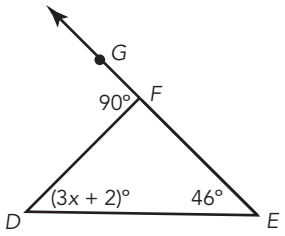


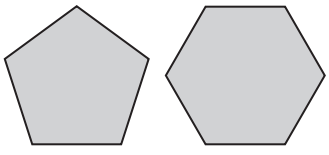
d.



Stretch

To tessellate a plane means to cover a surface by repeated use of a single shape or design without gaps or overlaps. M.C. Escher was a Dutch graphic artist who famous for his tessellations, perspective drawings, and impossible spaces.

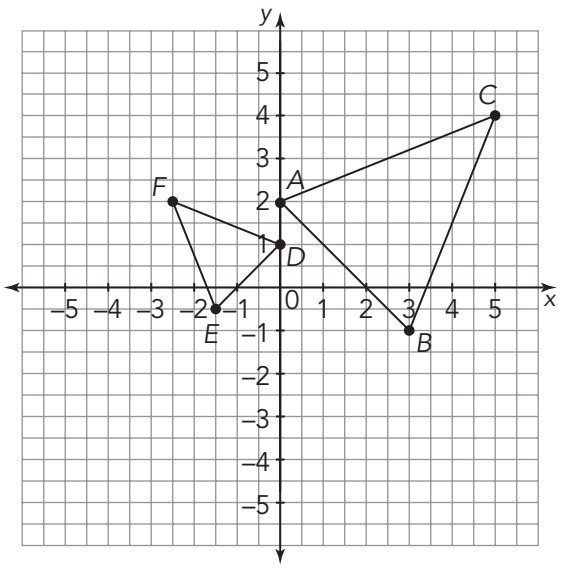
Not all shapes or patterns can be tessellated. Use what you know about interior and exterior angles to show why it is possible to tessellate with a regular hexagon but not with a regular pentagon.



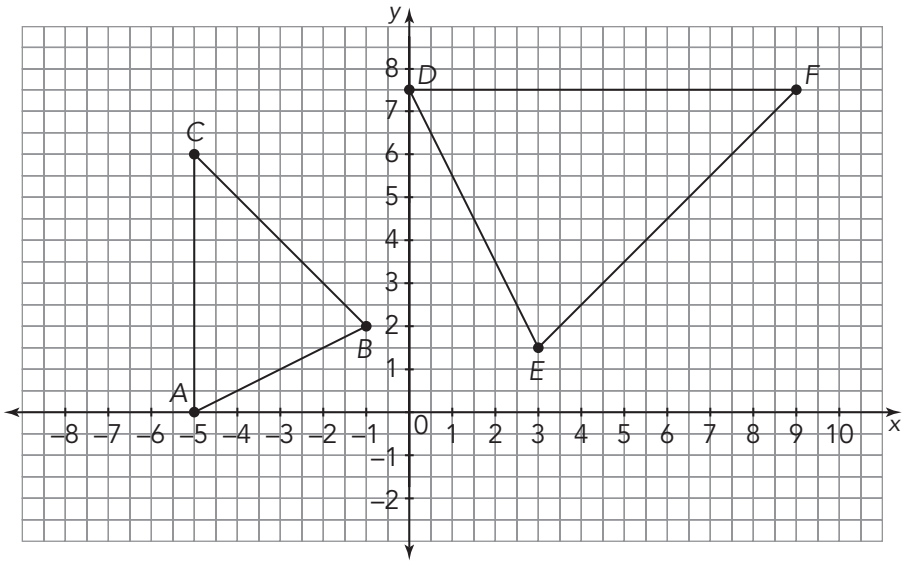
Review

1. Triangle *ABC* is similar to Triangle *DEF*. Determine a sequence of transformations that maps $\triangle ABC$ onto $\triangle DEF$.

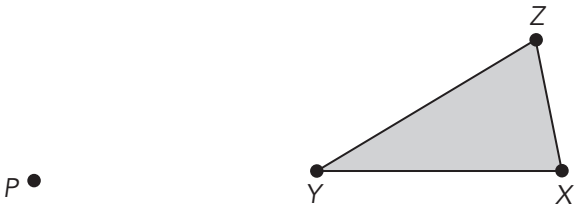
a.



b.

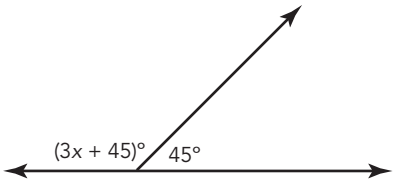


2. Dilate $\triangle XYZ$ by the given scale factor, using point P as the center of dilation.
   a. Dilate by a scale factor of $\frac{3}{4}$.
   b. Dilate by a scale factor of 1.5.



3. Calculate the measure of each angle.

a.



b.