

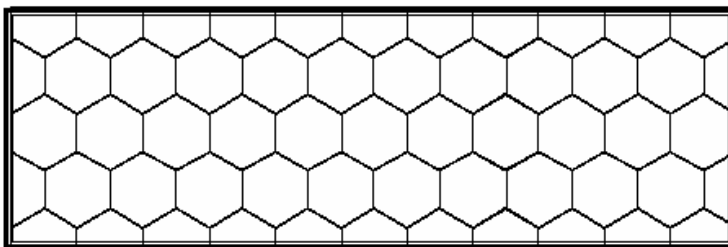
<b>Student Task</b>	Reason and formulate arguments around the properties of hexagons and triangles.
<b>Core Idea 2 Mathematical Reasoning</b>	<b>Solve problems that make significant demands in one or more of these aspects of the solutions process: problem formulation, problem implementation, and problem conclusion. Students communicate their knowledge of basic skill, conceptual understanding, and problem solving.</b> <ul style="list-style-type: none"><li>• Extract pertinent information from situations and figure out and identify what additional information is needed.</li><li>• Formulate conjectures, and argue why they must be or seem to be true.</li></ul>
<b>Core Idea 4 Geometry and Measurement</b>	<b>Analyze characteristics and properties of two-dimensional geometric shapes; develop mathematical arguments about geometric relationships; and apply appropriate techniques, tools, and formulas to determine measurements.</b> <ul style="list-style-type: none"><li>• Understand relationships among the angles, side lengths, perimeter, and area of shapes.</li><li>• Create and critique inductive and deductive arguments concerting geometric ideas and relationships.</li></ul>

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## Hexagons

This problem gives you the chance to:

- work with properties of shapes
  - explain your reasons
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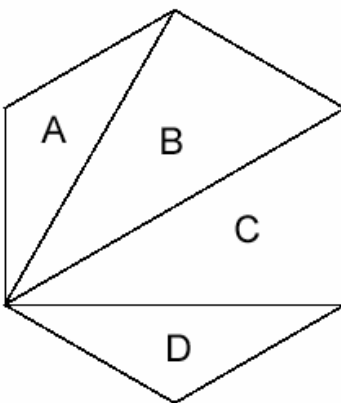


1. Regular hexagons can be used to make a tiling with no gaps or overlaps.  
What does this tell us about the measure of the angles of a regular hexagon?

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2. Here is a regular hexagon that has been divided into four triangles A, B, C, and D.



- (a) Name a triangle that is isosceles.

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Explain your reasons.

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(b) Name a right triangle. \_\_\_\_\_

Explain how you figured it out.

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(c) Name a triangle that is congruent to triangle C. \_\_\_\_\_

Explain your reasons.

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9

Hexagons		Test 8 Rubric	
The core elements of performance required by this task are: <ul style="list-style-type: none"> <li>• work with properties of shapes</li> <li>• explain your reasons</li> </ul> Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1. Gives a correct answer such as: The measure of each angle of a regular hexagon is $120^\circ$ , (because $3 \times 120^\circ = 360^\circ$ ). <b>or</b> The total measure of the angles of a regular hexagon is $720^\circ$ .		2 <b>or</b> 2	2
2a. Gives a correct answer: Triangle <b>A</b> or <b>D</b>  Gives a correct explanation such as: Two of its sides are of equal length because they are sides of a regular hexagon.		1  1	2
2b. Gives a correct answer: Triangle <b>C</b> or <b>B</b>  Gives a correct explanation such as: Triangles A and D have angles $120^\circ$ , $30^\circ$ , $30^\circ$ . Therefore, triangles C and B have an angle $120^\circ - 30^\circ = 90^\circ$ .		1  1 1	3
2c. Gives a correct answer: Triangle <b>B</b>  Gives a correct explanation such as: Makes two correct statements relevant to congruence, one of which must be about a side. <b>or</b> The line between triangles B and C is a line of symmetry.		1  1 <b>or</b> 1	2
<b>Total Points</b>			<b>9</b>