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| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_**Lesson 47** Geometry |

**Opening Exercise**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Polygon | Number of sides (n) | Name of Polygon | Number of s formed | Sum of the measures of the angles |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| *n*-gon |  |  |  |  |

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| **RULE FOR THE SUM OF THE ANGLES OF A POLYGON** |

**Practice Exercises**

* + - 1. If the measures of four interior angles 116, 138, 94, and 88, what is

the measure of the remaining interior angle?

 76 (2) 104 (3) 120 (4) 144

* + - 1. Find the sum of the measures of the interior angles of a polygon with 11 sides.
			2. What is the sum of the measures of the interior angles of a decagon?
			3. If the sum of the measure of the interior angles of a polygon is 1,080o, how many sides does the polygon have?
			4. Find the number of sides of a polygon whose interior angles sum to 1,980o.
			5. \* What is the measure of *each* interior angle of a regular pentagon?

A regular polygon is a closed figure in which all sides are congruent.





2. Construct 

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| **Theorem** |

**Practice Problems**

1. Which of the following may be lengths of the sides of a triangle?
2.  (3) 
3.  (4) 
4. Which of the following may be lengths of the sides of a triangle?
5.  (3) 

(2)  (4) 

1. The lengths of two of the sides of a triangle are 8 and 4. The length of the third side could be:
	* + 1. 16 (3) 4
			2. 12 (4) 8
2. Two sides of a triangle have lengths 2 and 5. Find all possible lengths of the third side.
3. Two sides of a triangle have lengths 7 and 11. Find the range of possible lengths of the third side.
4. If two sides of an isosceles triangle are 7 and 14, what could the length of the third side be?

**Review Problem**

7. Solve the following system of equations algebraically and check your solutions graphically.

1. b.