Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Table #: \_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_

**3.3A NOTES – Angles of Polygons**

*Objective: Discover the sum of the interior angle measures of polygons. Find the measures of interior angles of polygons. (CCSS: 8.G.5)* HW: (3.3A) p. 123 #4 – 14 (copy the figures if you are doing on paper and not in BIM)

DIRECTIONS

* Draw a line segment on the figure that divides it into triangles.
* **LINE SEGMENTS MUST NOT INTERSECT.**
* How many triangles can divide each figure?
* If the sum of the interior measures in a triangle are 180o, what is the sum of the interior angle measures of each figure?

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| **Convex Polygon Name** | **Diagram** | **Numbers of Sides** | **Number of Triangles** | **Sum of Interior Angles** |
| **Quadrilateral** | Image result for quadrilateral |  |  |  |
| **Pentagon** | This picture features a pentagon. A pentagon is a polygon (2D shape) with 5 sides and 5 interior angles which add to 540 degrees. |  |  |  |
| **Hexagon** | Image result for irregular hexagon |  |  |  |
| **Heptagon** |  |  |  |  |
| **Octagon** | Image result for octagon |  |  |  |
| **PROBLEM 1A:** | **PROBLEM 1B:**Find the sum of the interior angles or a 12 sided polygon. |

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| **INTERIOR MEASURES OF A POLYGON (p. 120)**The sum \_\_\_ of the INTERIOR ANGLES of a polygon with \_\_\_\_ sides is **S = ( ) ∙ 180** |
| **Example 1** 1. Find the sum of the interior angle measures of a 19 sided polygon.
2. Find the sum of the interior angle measures of a 29 sided polygon.
 | **Example 2** Find the value of x |
| **Example 3:** Find the value of x and the missing angles. | **Example 4:**Find the value of x and the missing angles. |

**ON YOUR OWN**

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| **#1: Find the value of x.** | **#2: Find the value of x.** | **#3: Find the value of x and the missing angles.** |

Beginning of lesson (Review for 3.1-3.2 Quiz)

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| 1. Describe the relationship between each pair of angles. (corresponding, alternate interior, alternate exterior, vertical, or no relationship)

1. $∠2=∠7$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. $∠1=∠5$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. $∠4=∠5$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. $∠1=∠6$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. $∠5=∠8$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |
| If the measure of $∠1$ is equal to 110o, find the measure of the other angles.

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|  | $∠2= \\_\\_\\_\\_$ $∠3= \\_\\_\\_\\_$ $∠4= \\_\\_\\_\\_$ $∠5= \\_\\_\\_\\_$ $∠6= \\_\\_\\_\\_$ $∠7= \\_\\_\\_\\_$  | $∠2= \\_\\_\\_\\_$ because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_$∠2= \\_\\_\\_\\_$ because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | $∠2= \\_\\_\\_\\_$ because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_$∠2= \\_\\_\\_\\_$ because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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