

Name: _____

Date: _____

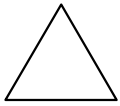
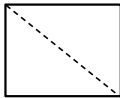
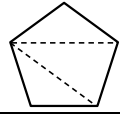
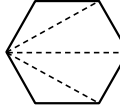
Topic: _____

Class: _____

Main Ideas/Questions	Notes/Examples
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POLYGON	A polygon is a _____ figure formed by three or more _____, called _____.
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<i>Sum of the</i> INTERIOR ANGLE <i>Measures</i>	The sum of the measures of the interior angles in any polygon can be determined by the number of triangles that can be drawn within the polygon. Complete the table below and look for a pattern to find the sum of the degrees in any polygon.
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Polygon	Picture	# of Sides	# of Triangles	Sum of Interior \angle 's
Triangle				
Quadrilateral				
Pentagon				
Hexagon				
Heptagon	X			
Octagon	X			
Nonagon	X			
Decagon	X			

INTERIOR <i>Angle Sum</i> FORMULA	If n represents the number of sides of a polygon, then the sum of the interior angle, S , can be found using the formula: _____
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Find the sum of the measures of the interior angles in each polygon.	
1. 15-gon	2. 21-gon
3. 48-gon	4. 36-gon

REGULAR POLYGON

The measure of a single interior angle in a regular polygon can be found by dividing the sum of the interior angle measures, S , by the number of sides, n .

Find the measure of each interior angle in the following polygons.

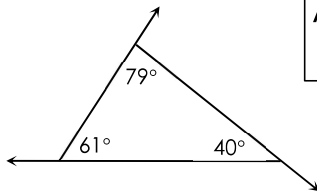
5. regular pentagon

6. regular 18-gon

Sum of the EXTERIOR ANGLE Measures

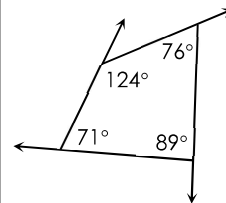
Exterior angles are supplementary to their adjacent interior angle. Find the measure of each exterior angle on the polygons below, then give the sum of all exterior angle measures.

Triangle:



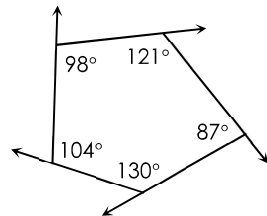
Sum of Exterior Angles Measures: _____

Quadrilateral:



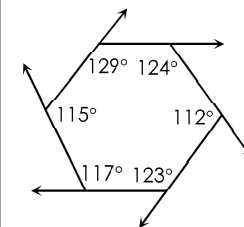
Sum of Exterior Angles Measures: _____

Pentagon:



Sum of Exterior Angles Measures: _____

Hexagon:



Sum of Exterior Angles Measures: _____

What can you conclude about the sum of the exterior angles measures of a polygon?

MORE EXAMPLES

7. What is the measure of each exterior angle of a regular hexagon?

8. What is the measure of each exterior angle of a regular 24-gon?

9. If the exterior angle of a regular polygon measures 12° , how many sides does the polygon have?

10. If the exterior angle of a regular polygon measures 40° , how many sides does the polygon have?



more practice with

INTERIOR & EXTERIOR ANGLE MEASURES



INTERIOR & EXTERIOR OF ANY POLYGON REFERENCE:

Sum of the INTERIOR Angle Measures:

Sum of the EXTERIOR Angle Measure:

INTERIOR & EXTERIOR ANGLES OF REGULAR POLYGONS REFERENCE:

Interior Angle Measure
of a Regular Polygon:

Exterior Angle Measure
of a Regular Polygon:

The Number of Sides
of a Regular Polygon:

PRACTICE QUESTIONS

1. What is the sum of the measures of the interior angles of a pentagon?

2. What is the sum of the measures of the interior angles of a 27-gon?

3. What is the measure of each interior angle of a regular octagon?

4. What is the measure of each interior angle of a regular 20-gon?

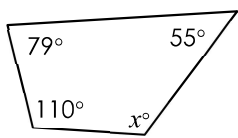
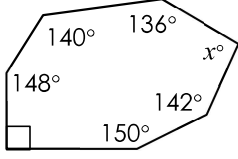
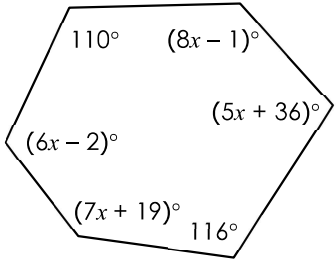
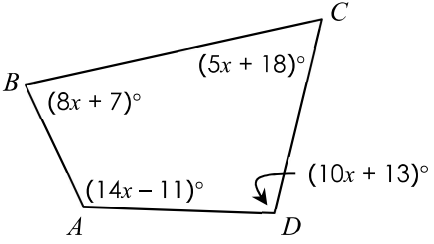
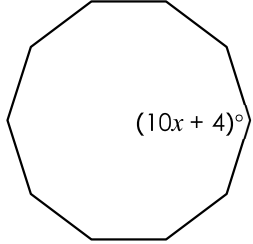
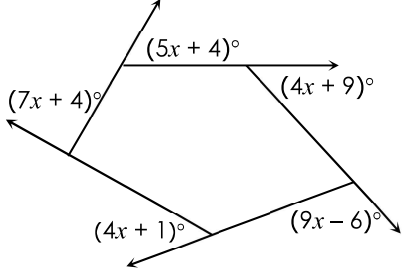
5. Five angles of a hexagon measure 119° , 129° , 104° , 139° , and 95° . What is the measure of the sixth angle?

6. The sum of the interior angles of a polygon is 1620° . How many sides does the polygon have?

7. The sum of the interior angles of a polygon is 3960° . How many sides does the polygon have?

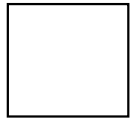
8. What is the sum of the measures of the exterior angles of a nonagon?

9. What is the measure of each exterior angle of a regular 20-gon?

<p>10. If the exterior angle of a regular polygon measures 9°, how many sides does the polygon have?</p>	<p>11. If the interior angle of a regular polygon measures 108°, how many sides does the polygon have?</p>
<p>12. Find the value of x.</p> 	<p>13. Find the value of x.</p> 
<p>14. Solve for x.</p> 	
<p>15. Find $m\angle B$.</p> 	
<p>16. If the figure below is a regular polygon, find the value of x.</p> 	
<p>17. Find the value of x.</p> 	

Name: _____

Unit 8: Polygons & Quadrilaterals



Date: _____ Per: _____

Homework 1: Angles of Polygons

**** This is a 2-page document! ****

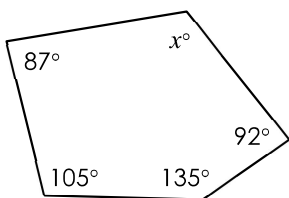
1. What is the sum of the measures of the interior angles of an octagon? _____
2. What is the sum of the measures of the interior angles of a 25-gon? _____
3. What is the measure of each interior angle of a regular hexagon? _____
4. What is the measure of each interior angle of a regular 16-gon? _____
5. What is the sum of the measures of the exterior angles of a decagon? _____
6. What is the measure of each exterior angle of a regular 30-gon? _____
7. An exterior angle of a regular polygon measures 22.5° . How many sides does it have? _____
8. An interior angle of a regular polygon measures 170° . How many sides does it have? _____

9. If the sum of the measures of the interior angles of a polygon is 1980° , how many sides does the polygon have?

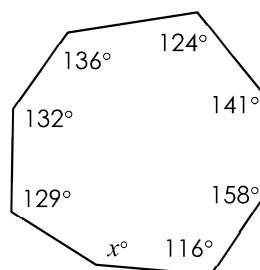
10. If the sum of the measures of the interior angles of a polygon is 5400° , how many sides does the polygon have?

11. The measure of the seven angles in a nonagon measure 138° , 154° , 145° , 132° , 128° , 147° , and 130° . If the two remaining angles are equal in measure, what is the measure of each angle?

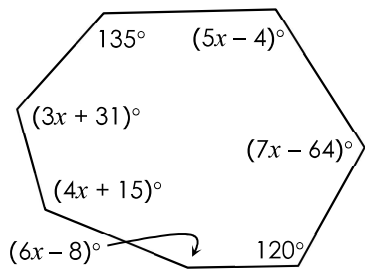
12. Find the value of x .



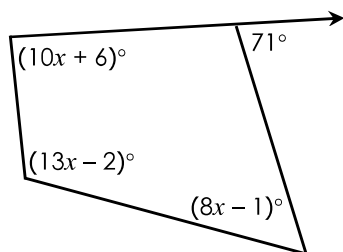
13. Find the value of x .



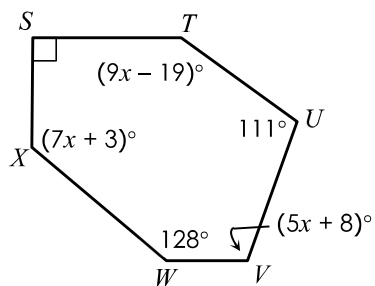
14. Find the value of x .



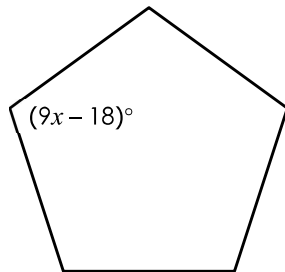
15. Find the value of x .



16. Find $m\angle V$.



17. If the figure below is a regular polygon, find the value of x .



18. Find $m\angle BCA$.

