

# Chapter 7 - Geometry

Starts Feb. 18 Period 1 & 4 2025

# Objectives for Week: Feb. 17-21

## Section 7.1: Angles of Polygons

**Common Core State Standards:** preparing for G.CO.C.11

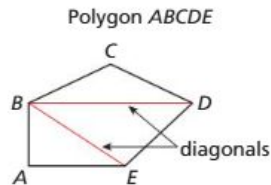
**Learning Target:** Find angle measures of polygons.

**Success Criteria**

- Find the sum of the interior angle measures of a polygon.
- Find interior angle measures of polygons.
- Find exterior angle measures of polygons.

**Vocabulary:** diagonal, equilateral polygon, equiangular polygon, regular polygon

In a polygon, two vertices that are endpoints of the same side are called *consecutive vertices*. A **diagonal** of a polygon is a segment that joins two *nonconsecutive vertices*.



A and B are consecutive vertices.  
Vertex B has two diagonals,  $\overline{BD}$  and  $\overline{BE}$ .

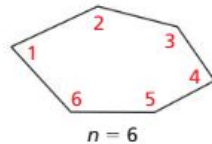
As you can see, the diagonals from one vertex divide a polygon into triangles. Dividing a polygon with  $n$  sides into  $(n - 2)$  triangles shows that the sum of the measures of the interior angles of a polygon is a multiple of  $180^\circ$ .

## THEOREM

### 7.1 Polygon Interior Angles Theorem

The sum of the measures of the interior angles of a convex  $n$ -gon is  $(n - 2) \cdot 180^\circ$ .

$$m\angle 1 + m\angle 2 + \cdots + m\angle n = (n - 2) \cdot 180^\circ$$



## Section 7.2: Properties of Parallelograms

**Common Core State Standards:** G.CO.C.11

**Learning Target:** Prove and use properties of parallelograms.

**Success Criteria**

- Prove properties of parallelograms.
- Use properties of parallelograms.
- Solve problems involving parallelograms in the coordinate plane.

**Vocabulary:** parallelogram

# Week of Feb. 17-21: Geometry Chapter 7 Start

Monday - No school as teacher inservice

**Tuesday** - Sub Day - Cover intro to Chapter 7

**Wednesday** - Examples/Exercises from Section 7.1 with names, sum of interior, and exterior angles

**Thursday** - Practice with partners

**Friday** - Review with Exit Ticket, Notes on Parallelograms in section 2

# Tuesday:

- 1) Edpuzzle to review names and triangle breakdown for interior angle sum.

<https://edpuzzle.com/media/67aa18cccf6c8e7e0a5694c>

- 2) Copy Chart into notes for later

reference and examples.

Expand for 9,10,12 sided

- 3) Watch 7.1 Example video off online dynamic classroom

- 4) Complete online 7.1 Practice

#1-4, 9-14 remember you can check

The odds.

# of Sides	Name of Polygon	# of Triangles Inside	Total Degrees Inside	Degrees in One Interior Angle	Degrees in One Exterior Angle	Total Exterior Angles
3	Triangle	1	180	60	120	360
4	Quadrilateral	2	360	90	90	360
5	Pentagon	3	540	108	72	360
6	Hexagon	4	720	120	60	360
7	Heptagon	5	900	128.6	51.4	360
8	Octagon	6	1080	135	45	360

# This is image of example to watch from textbook and copy

## 7.1 Angles of Polygons

Self-Assessment

Learning Target

Math T

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1 Angles of Polygons

Warm-Up

Laurie's Notes

Explore It!

Using Interior Angle Measures of Polygons

Theorem: 7.1 Polygon Interior Angles Theorem

Example 1: Finding the Sum of Angle Measures

### EXAMPLE 3

### Finding an Unknown Interior Angle Measure

Example

Stepped Out

Video

See another example

Find the value of  $x$  in the diagram.



### SOLUTION

The polygon is a quadrilateral. Use the Corollary to the Polygon Interior Angles Theorem to write an equation involving  $x$ . Then solve the equation.

$$x^\circ + 108^\circ + 121^\circ + 59^\circ = 360^\circ \quad \text{Corollary to the Polygon Interior Angles Theorem}$$

This is the image of the assignment.

In Hard textbook pg 352

Online dynamic classroom section 7.1 PRACTICE

Complete # 1-4, 9-10 with work on paper yet

Answers can be plugged in and odds checked

Example help videos are linked there also online.

In Exercises 1–4, find the sum of the measures of the interior angles of the indicated convex polygon.

▶ Example 1

- |            |           |
|------------|-----------|
| 1. nonagon | 2. 14-gon |
| 3. 16-gon  | 4. 20-gon |

In Exercises 5–8, the sum of the measures of the interior angles of a convex polygon is given. Classify the polygon by the number of sides. ▶ Example 2

- |                 |                 |
|-----------------|-----------------|
| 5. $720^\circ$  | 6. $1080^\circ$ |
| 7. $2520^\circ$ | 8. $3240^\circ$ |

In Exercises 9–14, find the value of  $x$ . ▶ Example 3

