



Classifying Polygons

Common Core: Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. (5.G.B.3)

Classify two-dimensional figures in a hierarchy based on properties. (5.G.B.4)

Objectives: 1) Students will learn vocabulary related to polygons.
2) Students will use that vocabulary to classify polygons.

Materials: Classifying Polygons worksheet
Internet access (for looking up definitions)

Procedure: 1) Students search the Internet for the definitions and record them on the Classifying Polygons worksheet.
2) Students share and compare their definitions since they may find alternative definitions.
3) Introduce or review prefixes and suffixes.
4) Students fill in the Prefixes section, and share answers.
5) Students classify the polygons found on page 2 of the worksheet.
6) With time remaining, have students explore some extension questions:
*Can a polygon be regular and concave? Show or explain your reasoning.
*Can a triangle be concave? Show or explain your reasoning.
*Could we simplify the definition of *regular* to just...
All sides congruent? or
All angles congruent? Show or explain your reasoning.
*Can you construct a pentagon with 5 congruent angles but is not considered regular? Show or explain your reasoning.
*Can you construct a pentagon with 5 congruent sides but is not considered regular? Show or explain your reasoning.

Notes to Teacher: I have my students search for these answers and definitions online, however I am sure that some math textbook glossaries may be a good alternative resource.

Classifying Polygons



Find the following definitions.

Two Dimensional – *Having two dimensions, length and width*

Line Segment – *A line bound by two endpoints*

Polygon – *A two dimensional shape made up of three or more line segments*

Congruent – *Having the same shape and size*

Regular polygon – *A polygon where all sides are equal and all angles are equal*

Irregular polygon – *Not regular; at least one side or angle is of different measure*

Convex polygon – *A polygon with no reflex angles (all interior angles are less than 180)*

Concave polygon – *A polygon with at least one reflex angle*

Give the prefixes for the following numbers.

Ex: Decade means 10 years, and century means 100 years.

3 = Tri

4 = Quadri

5 = Penta

6 = Hexa

7 = Hepta

8 = Octa

9 = Nona

10 = Deca

11 = Hendeca

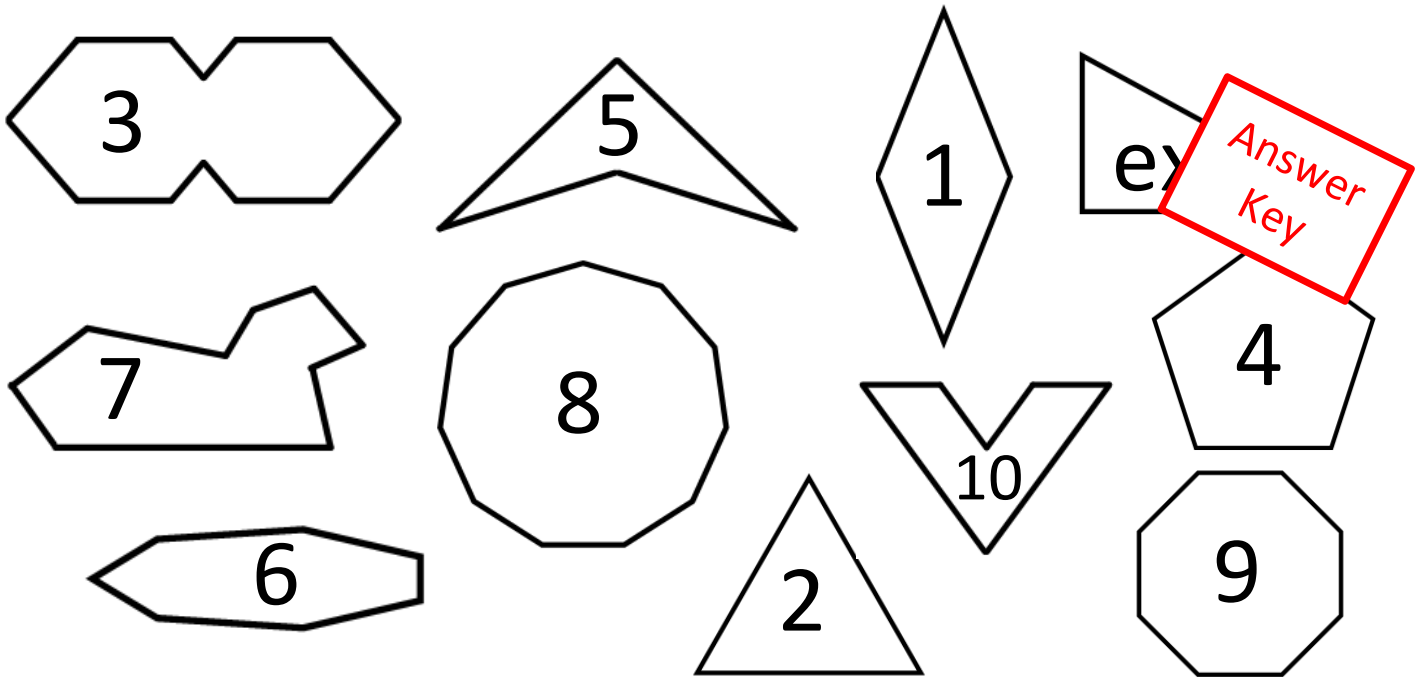
12 = Dodeca

20 = Icosa

100 = Centi

What does the suffix –gon mean?

A shape having a specific number of angles



Fill in the blanks using the shapes above.

<u>shape #</u>	<u>concave/convex</u>	<u>regular/irregular</u>	<u># of sides</u>	<u>name</u>
ex)	<u>convex</u>	<u>irregular</u>	<u>3</u>	<u>triangle</u>
1)	<u>Convex</u>	<u>Irregular</u>	<u>4</u>	<u>Quadrilateral</u>
2)	<u>Convex</u>	<u>Regular</u>	<u>3</u>	<u>Triangle</u>
3)	<u>Concave</u>	<u>Irregular</u>	<u>12</u>	<u>Dodecagon</u>
4)	<u>Convex</u>	<u>Regular</u>	<u>5</u>	<u>Pentagon</u>
5)	<u>Concave</u>	<u>Irregular</u>	<u>4</u>	<u>Quadrilateral</u>
6)	<u>Convex</u>	<u>Irregular</u>	<u>7</u>	<u>Heptagon</u>
7)	<u>Concave</u>	<u>Irregular</u>	<u>9</u>	<u>Nonagon</u>
8)	<u>Convex</u>	<u>Regular</u>	<u>11</u>	<u>Hendecagon</u>
9)	<u>Convex</u>	<u>Regular</u>	<u>8</u>	<u>Octagon</u>
10)	<u>Concave</u>	<u>Irregular</u>	<u>6</u>	<u>Hexagon</u>

Classifying Polygons

Find the following definitions.

Two Dimensional –

Line Segment –

Polygon –

Congruent –

Regular polygon –

Irregular polygon –

Convex polygon –

Concave polygon –

Give the prefixes for the following numbers.

Ex: Decade means 10 years, and century means 100 years.

3 = _____

4 = _____

5 = _____

6 = _____

7 = _____

8 = _____

9 = _____

10 = Deca _____

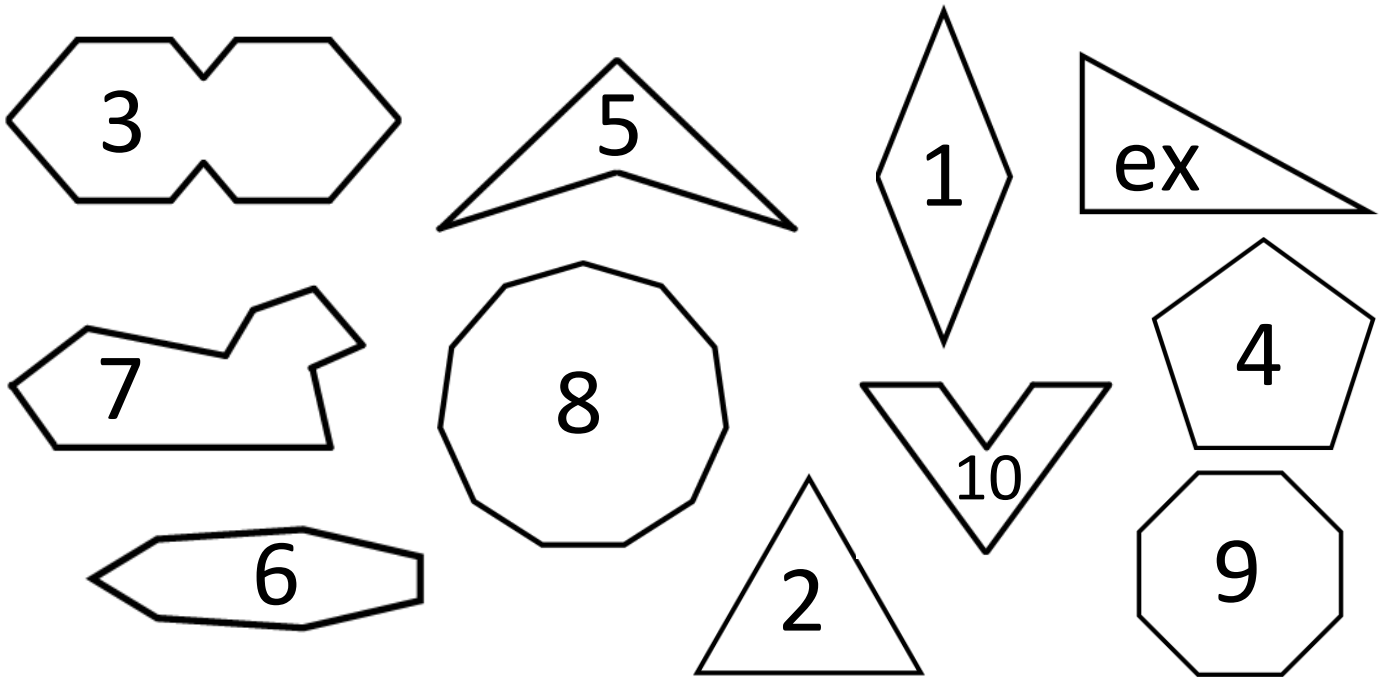
11 = _____

12 = _____

20 = _____

100 = Centi _____

What does the suffix **-gon** mean?



Fill in the blanks using the shapes above.

<u>shape #</u>	<u>concave/convex</u>	<u>regular/irregular</u>	<u># of sides</u>	<u>name</u>
ex)	<u>convex</u>	<u>irregular</u>	<u>3</u>	<u>triangle</u>
1)	_____	_____	_____	_____
2)	_____	_____	_____	_____
3)	_____	_____	_____	_____
4)	_____	_____	_____	_____
5)	_____	_____	_____	_____
6)	_____	_____	_____	_____
7)	_____	_____	_____	_____
8)	_____	_____	_____	_____
9)	_____	_____	_____	_____
10)	_____	_____	_____	_____