
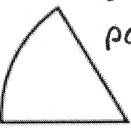


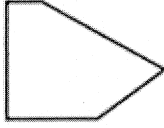
# Lesson 1.6 Worksheet


Name: Key

In exercises 1-4, tell whether the figure is a polygon. If it is not, explain why. If it is a polygon, tell whether it is *convex* or *concave*.

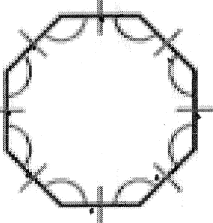
1.)   
 yes, polygon  
 concave

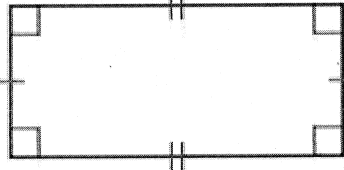
2.)   
 not a polygon  
 Not all sides are segments

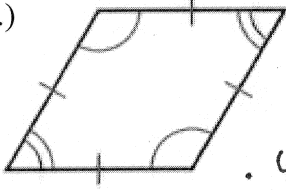
3.)   
 yes, polygon  
 convex

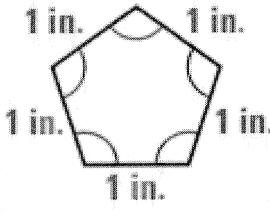
4.)   
 not a polygon  
 4 segments intersect at the same point.

In exercises 5-9, classify the polygon by the number of sides. Tell whether the polygon is equilateral, equiangular, or regular. Explain your reasoning.

5.)   
 Octagon  
 Regular  
 It is both equilateral and equiangular

6.)   
 Quadrilateral  
 Equiangular  
 All 4 sides are not marked as  $\cong$ , but the angles are all right angles.

7.)   
 Quadrilateral  
 Equilateral  
 • 4 sides are marked as  $\cong$   
 • Not all 4 angles are  $\cong$

8.)   
 Pentagon  
 Regular  
 Polygon is both equilateral and equiangular

9.) **Algebra:** The expressions  $(9x + 5)$  and  $(11x - 25)$  represent the measures of two angles of a regular nonagon. Find the measure of an angle of the regular nonagon.

$$9x + 5 = 11x - 25$$

$$30 = 2x$$

$$15 = x$$

$$9(15) + 5 = 140$$

Each angle measure =  $140^\circ$

Tell whether the statement is *always*, *sometimes*, or *never* true. Explain your answer.

10.) A triangle is convex *Always*.

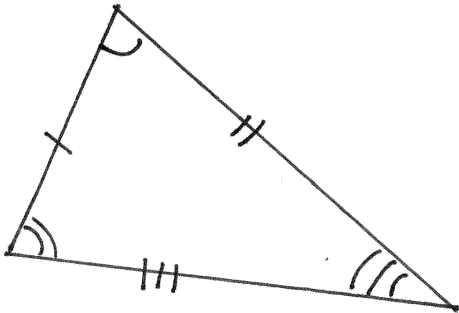
It is impossible to have a concave polygon w/ only 3 sides

12.) A regular polygon is equiangular. *Always*  
By definition, a regular polygon is both equilateral and equiangular

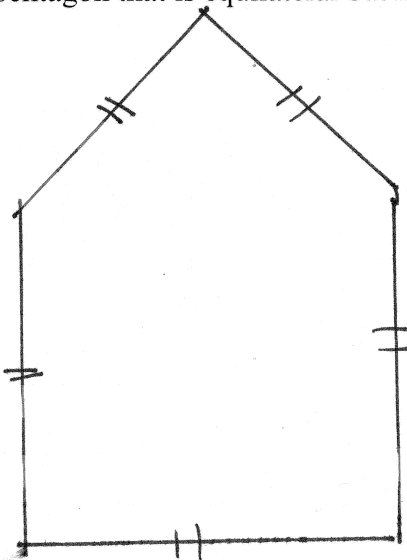
14.) A concave polygon is equiangular. *Never*  
Concave polygons will always have an angle whose measure is larger than  $180^\circ$ , and angles whose measure is less than  $180^\circ$

Draw a properly labeled figure to fit the description.

15.) A triangle that is not regular.



17.) A pentagon that is equilateral but not equiangular.



11.) A circle is a polygon. *Never*

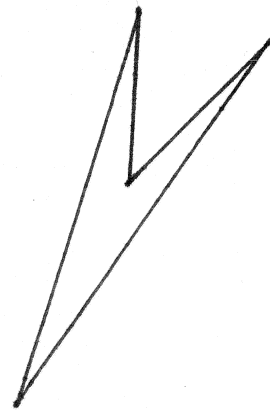
A polygon consists of segments, which a circle has none.

13.) A decagon is regular. *Sometimes*

Decagon only means ten sides. It does not have to be regular, but could be.



16.) A concave quadrilateral.



18.) An octagon that is equiangular but not equilateral.

