

Lesson 10-6

Example 1 Classify Polygons

Classify each polygon.

a.



The polygon has six sides.
It is a hexagon.

b.



The polygon has five sides.
It is a pentagon.

Example 2 Measures of Interior Angles

Find the sum of the measures of the interior angles of an octagon.

An octagon has 8 sides. Therefore, $n = 8$.

$$\begin{aligned}(n - 2)180 &= (8 - 2)180 && \text{Replace } n \text{ with } 8. \\ &= (6)180 \text{ or } 1080 && \text{Simplify.}\end{aligned}$$

The sum of the measures of the interior angles of an octagon is 1080° .

Example 3 Find Angle Measure of a Regular Polygon

PLAYGROUND The playground at Hayes Elementary School has the shape of a regular pentagon. Find the measure of an interior angle of the playground.

Step 1 Find the sum of the measures of the angles.

A pentagon has 5 sides. Therefore $n = 5$.

$$\begin{aligned}(n - 2)180 &= (5 - 2)180 && \text{Replace } n \text{ with } 5. \\ &= (3)180 \text{ or } 540 && \text{Simplify.}\end{aligned}$$

The sum of the measures of the interior angles is 540° .

Step 2 Divide the sum of the measures by 5.

$$540 \div 5 = 108$$

So, the measure of an interior angle of the playground is 108° .