REVIEW: Angles of Polygons

Name _____

Key Concept and Vocabulary

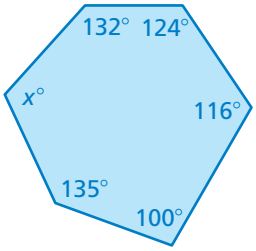
The sum S of the angle measures of a polygon with n sides is

$$S = (n - 2) \cdot 180°.$$

In a **regular polygon,** all of the sides are congruent and all of the angles are congruent.

Skill Example

1. Find the sum of the angle measures of the polygon.



The polygon has 6 sides.

$$\begin{aligned} S &= (n - 2) \cdot 180° \\ &= (6 - 2) \cdot 180° \\ &= 4 \cdot 180° \\ &= 720° \end{aligned}$$

∴ The sum of the angle measures is 720°.

Application Example

2. Find the value of x for the polygon in Exercise 1.

From Exercise 1, the sum of the angle measures is 720°. Write and solve an equation.

$$\begin{aligned} 132 + 124 + 116 + 100 + 135 + x &= 720 \\ 607 + x &= 720 \\ x &= 113 \end{aligned}$$

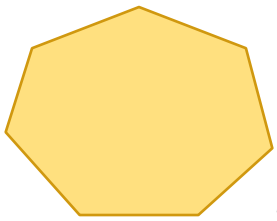
∴ The value of x is 113.

PRACTICE MAKES *PURR*-FECT™

Check your answers at BigIdeasMath.com.

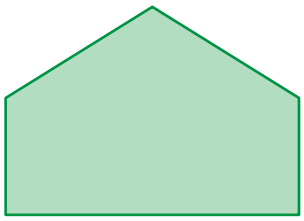
Find the sum of the angle measures of the polygon.

3.



$S =$ 900°

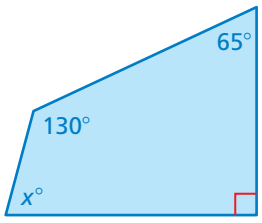
4.



$S =$ 540°

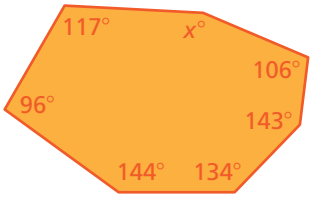
Find the value of x.

5.



$x =$ 75°

6.



$x =$ 160°

7. LOGO A company's logo is in the shape of a regular polygon. How many sides does the polygon have? What is the measure of each angle of the polygon? 12; 150°