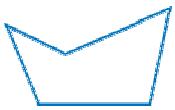
Lesson 5-7

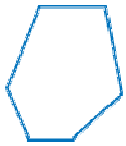
Example 1

Classify each polygon by its number of sides. State whether it is convex or concave, regular or not regular.

a. 

b. 

c. 

d. 

Solution

a. The figure has four congruent sides and four congruent angles. It is a square, which is convex and regular.

b. The figure has five sides, so it is a pentagon. There are two lines containing sides with points in the interior, so it is a concave pentagon that is not regular.

c. The figure has three congruent sides and three congruent angles. It is an equilateral triangle, which is convex and regular.

d. The figure has six sides, so it is a hexagon. It is convex, but since not all sides and angles are congruent, it is not regular.

Example 2

Find the sum of the interior angles of each convex polygon.

a. hexagon

b. octagon

Solution

a. A hexagon has 6 sides.
$(n - 2)180°$
$(6 - 2)180°$
$(4)180° = 720°$

b. An octagon has 8 sides.
$(n - 2)180°$
$(8 - 2)180°$
$(6)180° = 1080°$

Example 3

ART Jasmine is creating a mosaic using different kinds of tiles. One of the tiles is a regular heptagon. Find the measure of an interior angle of this tile.

Solution

Use the formula for the interior angle measure of a regular heptagon.

$$\frac{(n - 2)180^\circ}{n} = \frac{(7 - 2)180^\circ}{7}$$

$$= \frac{5 \cdot 180^\circ}{7}$$

$$= 128.57^\circ$$