LESSON 8.1

NAME _____ DATE _____

Reteaching with Practice

For use with pages 411–415

GOAL **Describe polygons.**

VOCABULARY

A polygon is **convex** if no line that contains a side of the polygon passes through the interior of the polygon.

A polygon that is not convex is called **concave**.

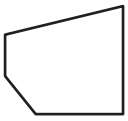
A polygon is **equilateral** if all of its sides are congruent.

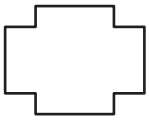
A polygon is **equiangular** if all of its interior angles are congruent.

A polygon is **regular** if it is both equilateral and equiangular.

EXAMPLE 1 Identify Convex and Concave Polygons

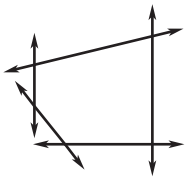
Decide whether the polygon is *convex* or *concave*.

a. 

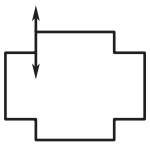
b. 

SOLUTION

a. None of the extended sides pass through the interior. So, the polygon is convex.

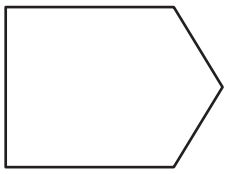


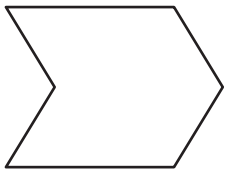
b. At least one extended side passes through the interior. So, the polygon is concave.

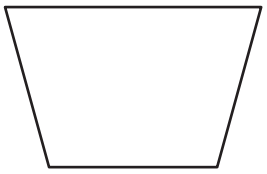


Exercises for Example 1

Decide whether the polygon is *convex* or *concave*.

1. 

2. 

3. 

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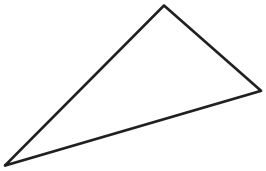
4.



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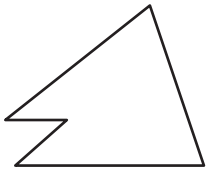

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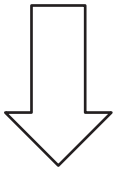
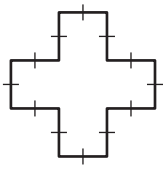


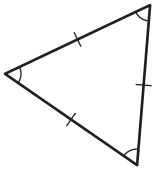
EXAMPLE 2 *Identify Regular Polygons*

Decide whether the polygon is regular. Explain your answer.

a.



b.



SOLUTION

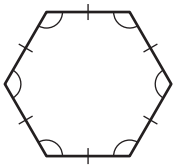
a. The polygon is equilateral because all of the sides are congruent. The polygon is not equiangular because not all of the angles are congruent. So, the polygon is not regular.

b. The polygon is equilateral because all of the sides are congruent. The polygon is equiangular because all of the angles are congruent. So, the polygon is regular.

Exercises for Example 2

Decide whether the polygon is regular. Explain your answer.

7.



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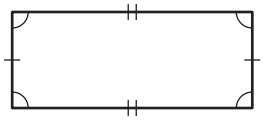

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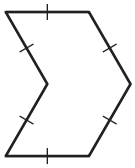

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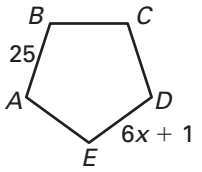
EXAMPLE 3 Using Algebra

The polygon is regular. Find the value of x.



SOLUTION

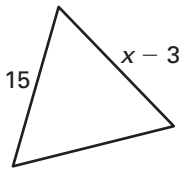
Because the polygon is regular, all of its sides are congruent.

$AB = DE$	The sides of the polygon are congruent.
$25 = 6x + 1$	Substitute 25 for AB and $6x + 1$ for DE.
$24 = 6x$	Subtract 1 from each side.
$4 = x$	Divide each side by 6.

Exercises for Example 3

The polygons are regular. Find the value of *x*.

10.



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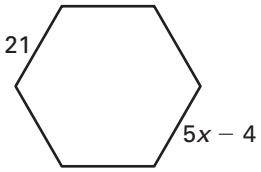

12.