mple 8.1
e measures of the
s of a convex regular
60°. Classify the poly-
mber of sides. What
e of each interior
gon, 140°

8 CHAPTER REVIEW

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REVIEW KEY VOCABULARY

For a list of postulates and theorems, see pp. 926–931.

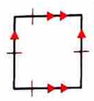
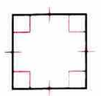
- diagonal, *p. 507*
- parallelogram, *p. 515*
- rhombus, *p. 533*
- rectangle, *p. 533*
- square, *p. 533*
- trapezoid, *p. 542*
- bases of a trapezoid, *p. 542*
- base angles of a trapezoid, *p. 542*
- legs of a trapezoid, *p. 542*
- isosceles trapezoid, *p. 543*
- midsegment of a trapezoid, *p. 543*
- kite, *p. 545*

VOCABULARY EXERCISES

In Exercises 1 and 2, copy and complete the statement.

1. The ___?___ of a trapezoid is parallel to the bases. **midsegment**
2. A(n) ___?___ of a polygon is a segment whose endpoints are nonconsecutive vertices. **diagonal**
3. **WRITING** *Describe* the different ways you can show that a trapezoid is an isosceles trapezoid. **Prove the trapezoid has a pair of congruent base angles or the diagonals are congruent.**

In Exercises 4–6, match the figure with the most specific name.

4.  **C**
5.  **A**
6.  **B**

A. Square **B.** Parallelogram **C.** Rhombus

REVIEW EXAMPLES AND EXERCISES

Use the review examples and exercises below to check your understanding of the concepts you have learned in each lesson of Chapter 8.

8.1 Find Angle Measures in Polygons *pp. 507–513*

EXAMPLE

The sum of the measures of the interior angles of a convex regular polygon is 1080°. Classify the polygon by the number of sides. What is the measure of each interior angle?

Write and solve an equation for the number of sides n.

$(n - 2) \cdot 180° = 1080°$ **Polygon Interior Angles Theorem**

$n = 8$ **Solve for n.**

The polygon has 8 sides, so it is an octagon.

A regular octagon has 8 congruent interior angles, so divide to find the measure of each angle: $1080° \div 8 = 135°$. The measure of each interior angle is 135°.

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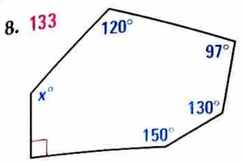
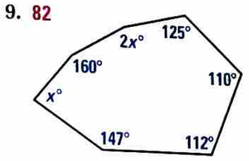
EXAMPLES 1, 2, 3, 4, and 5 on pp. 508–510 for Exs. 7–11

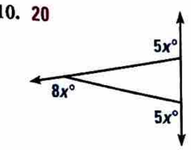
EXERCISES

7. The sum of the measures of the interior angles of a convex regular polygon is 3960°. Classify the polygon by the number of sides. What is the measure of each interior angle? **24-gon; 165°**

In Exercises 8–10, find the value of x.

8. **133**


9. **82**


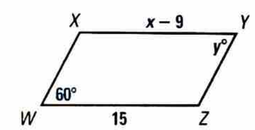
10. **20**


11. In a regular nonagon, the exterior angles are all congruent. What is the measure of one of the exterior angles? *Explain.* **40°; the sum of the measures of the exterior angles is always 360°, and there are nine congruent external angles in a nonagon.**

8.2 Use Properties of Parallelograms *pp. 515–521*

EXAMPLE

Quadrilateral $WXYZ$ is a parallelogram. Find the values of x and y.



To find the value of x, apply Theorem 8.3.

$XY = WZ$ **Opposite sides of a ▱ are ≅.**

$x - 9 = 15$ **Substitute.**

$x = 24$ **Add 9 to each side.**

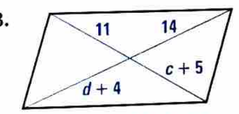
By Theorem 8.4, $\angle W \cong \angle Y$, or $m\angle W = m\angle Y$. So, $y = 60$.

EXAMPLES 1, 2, and 3 on pp. 515, 517 for Exs. 12–17

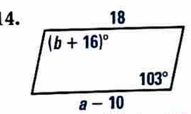
EXERCISES

Find the value of each variable in the parallelogram.

12.  **$n = 11$**

13. 

$c = 6$, $d = 10$

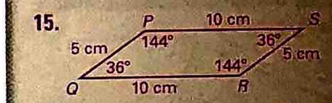
14. 

$a = 28$, $b = 87$

15. In ▱$PQRS$, $PQ = 5$ centimeters, $QR = 10$ centimeters, and $m\angle PQR = 36°$. Sketch $PQRS$. Find and label all of its side lengths and interior angle measures. **See margin.**
16. The perimeter of ▱$EFGH$ is 16 inches. If EF is 5 inches, find the lengths of all the other sides of $EFGH$. *Explain* your reasoning. **See margin.**
17. In ▱$JKLM$, the ratio of the measure of $\angle J$ to the measure of $\angle M$ is 5 : 4. Find $m\angle J$ and $m\angle M$. *Explain* your reasoning. **100°, 80°; solve $5x + 4x = 180$ for x.**

Extra Example 8.2

Quadrilateral $ABCD$ is a parallelogram. Find the values of x and y.
82, 18

15.


16. $FG = 3$ in., $GH = 5$ in., $HE = 3$ in.; in a parallelogram opposite sides have the same measure, therefore $EF = GH = 5$ inches. This leaves 6 inches for both $\overline{FG}$ and $\overline{HE}$. Since $FG = HE$, they both are 3 inches in length.

8 CHAPTER REVIEW

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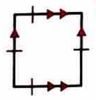
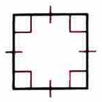
4.  **C**
5.  **A**
6.  **B**

A. Square **B.** Parallelogram **C.** Rhombus

REVIEW EXAMPLES AND EXERCISES

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EXAMPLES 1, 2, and 3 on pp. 515, 517 for Exs. 12–17

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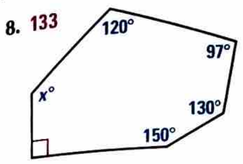

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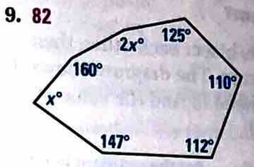

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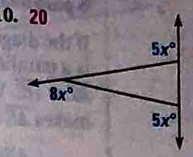

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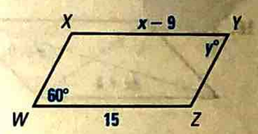

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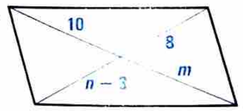
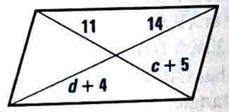
12. 

$m = 10$, $n = 11$

13. 

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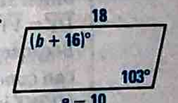
14. 

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