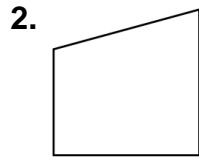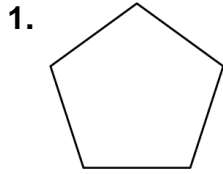# Geometry Chapter 7 Review
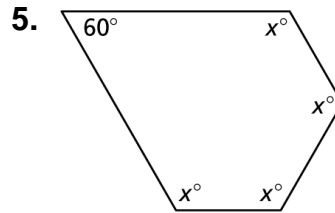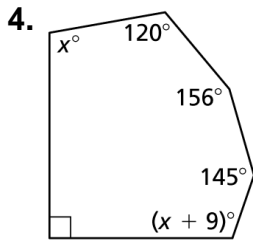
Find the sum of the measures of the interior angles and the sum of the measures of the exterior angles of the polygon.
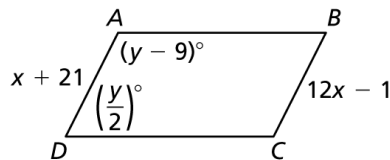
1.

2.

3.

Find the value of *x*.

4.

$x°$ 120°
156°
145°
$(x + 9)°$

5.
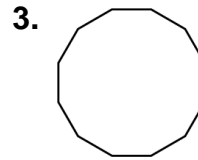
60° $x°$
$x°$
$x°$ $x°$

6. Find the measure of each exterior angle of a regular polygon in which the sum of the measures of the interior angles is 5400°.

7. What is the sum of the exterior angles in a regular 15-gon?

Find the indicated measure in parallelogram ABCD. Explain your reasoning.

8. *AD*

9. *m∠B*

A   B
$(y − 9)°$
$x + 21$ $12x − 1$
$\left(\frac{y}{2}\right)°$
D   C

10. Three vertices of parallelogram *DEFG* are $D(5, 2)$, $E(2, 6)$, and $F(-8, -3)$. Find the coordinates of vertex *G*.

Find the indicated measure in parallelogram *STUV*. Explain your reasoning.
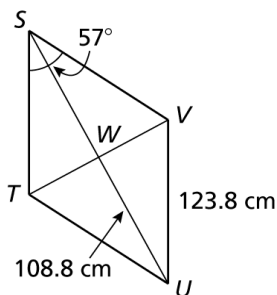
11. *TS*

12. *SW*

13. *m∠SVU*

14. *m∠STU*

15. *US*

16. *m∠TUV*

S
57°
V
W
T   123.8 cm
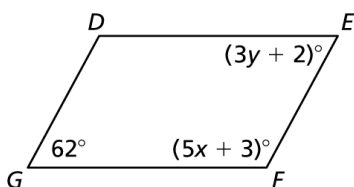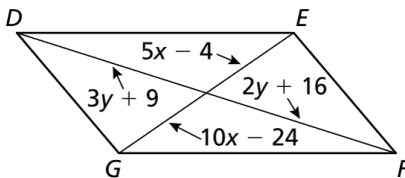108.8 cm
U

17. Show that the quadrilateral with vertices $B(-4, 4)$, $D(6, 6)$, $F(7, 0)$, and $H(-3, -2)$ is a parallelogram.

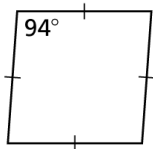**Find the values of *x* and *y* that make the quadrilateral a parallelogram.**
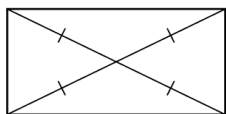
18.

D — E
$(3y + 2)°$
$62°$ $(5x + 3)°$
G   F

19.

D   E
$5x - 4$
$3y + 9$ $2y + 16$
$10x - 24$
G   F

Classify the special quadrilateral. Explain your reasoning.
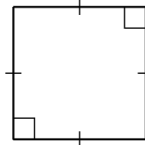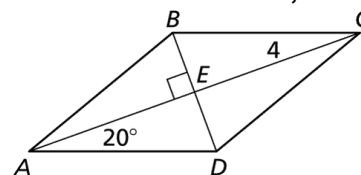
20.

$94°$

21.

22.

The diagnosis of rhombus *ABCD* intersect at *E*. Given that $m\angle CAD$ is 20° and $CE = 4$, find the indicated measure.

B   C
4
E
$20°$
A   D

23. $m\angle BCA$ **24.** $m\angle CDA$ **25.** AC

Determine whether the given points represent the vertices of a trapezoid. If so, determine whether it is isosceles or not.

26. $A(-4, -1),\ B(-4, 6),\ C(2, 6),\ D(2, -4)$

27. $A(-5, 2),\ B(-5, 6),\ C(-1, 6),\ D(2, -1)$

Find the length of the midsegment of the trapezoid.

28.

$2n - 2$
$n + 12$
$4n + 6$

29.

$5n - 2$
$2n + 11$
$n + 8$
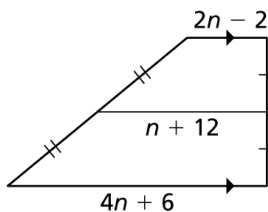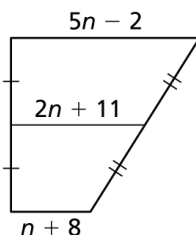
In kite *ABCD*, $m\angle DAE = 16°$, and $m\angle EDC = 64°$. Find the indicated measure.

30. $m\angle ABC$

31. $m\angle BCD$

A   B
E
D   C

Be prepared to determine if a parallelogram is a rectangle, rhombus or a square.

Know the theorems you can use to prove a quadrilateral is a parallelogram.

Geometry Ch 7 Review Answers:

1. interior: 540°, exterior: 360°

2. interior: 360°, exterior: 360°

3. interior: 1800°, exterior: 360°

4. 100

5. 120

6. 11.25°

7. 360°

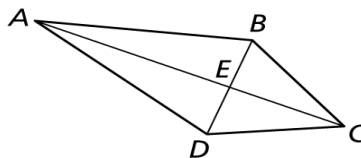**8.** 23; The Parallelogram Opposite Sides Theorem (Thm. 7.3) states if a quadrilateral is a parallelogram, then its opposite sides are congruent. So, $x + 21 = 12x - 1$, and $x = 2$. So, $AD = 23$.

9. 63°; The Parallelogram Consecutive Angles Theorem (Thm. 7.5) states that if a quadrilateral is a parallelogram, then its consecutive angles are supplementary. So, $y - 9 + \left(\dfrac{y}{2}\right) = 180$, and $y = 126$. So, $m\angle D = 63°$, and by the Parallelogram Opposite Angles Theorem (Thm. 7.4), $m\angle B = 63°$.

10. $G(-5, -7)$

11. 123.8 cm; Parallelogram Opposite Sides Theorem (Thm. 7.3)

12. 108.8 cm; Parallelogram Diagonals Theorem (Thm. 7.6)

13. 123°; Parallelogram Consecutive Angles Theorem (Thm. 7.5)

14. 123°; Parallelogram Opposite Angles Theorem (Thm. 7.4)

15. 217.6 cm; Parallelogram Diagonals Theorem (Thm. 7.6)

16. 57°; Parallelogram Opposite Angles Theorem (Thm. 7.4)

17. *Sample answer:* $\overline{BD}$ and $\overline{FH}$ have the same slope $\frac{1}{5}$, and $\overline{BH}$ and $\overline{FD}$ have the same slope -6. So, BD P FH and BH P FD.

18. $x = 23$, $y = 20$

19. $x = 4$, $y = 7$

20. rhombus; by the Rhombus Corollary (Cor. 7.2)

21. rectangle; Rectangle Diagonals Theorem (Thm. 7.13)

22. square; By the Rhombus Corollary (Cor. 7.2), it is a rhombus, and by the Rectangle Corollary (Cor. 7.3), it is a rectangle. A rectangle that is also a rhombus is a square.

23. 20°

24. 140°

25. 8

26. yes; no

27. no

28. 17

29. 27

30. 138°

31. 52°