Geometry   Name __*Answer Key*__   Period _____

Chapter 6 Review

For problems 1-9, state whether each sentence is *true* or *false*.

___F___ **1.** No angles in an isosceles trapezoid are congruent.

___T___ **2.** If a parallelogram is a rectangle, then the diagonals are congruent.

___T___ **3.** The base of a trapezoid is one of the parallel sides.

___T___ **4.** The diagonals of a rhombus are perpendicular.

___F___ **5.** In a polygon, a diagonal is a segment that connects consecutive vertices of the polygon.

___F___ **6.** A rectangle is not always a parallelogram.

___F___ **7.** A quadrilateral with only one set of parallel sides is a parallelogram.

___T___ **8.** A rectangle that is also a rhombus is a square.

___F___ **9.** The leg of a trapezoid is one of the parallel sides.

Find the sum of the measures of the *interior* angles of each regular polygon.

10. decagon   **11.** 15-gon

      $1440°$ $2,340°$

Find the measure of one *interior* angle of each regular polygon.

12. rectangle   **13.** 16-gon

      $90°$ $157.5°$

Find the measure of one *exterior* angle of each regular polygon.

14. hexagon   **15.** 18-gon

      $60°$ $20°$
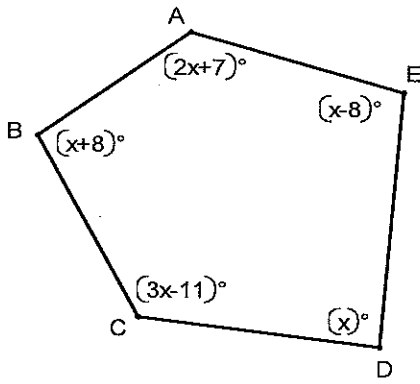
The measure of an interior angle of a regular polygon is given. Find the number of sides in the polygon.
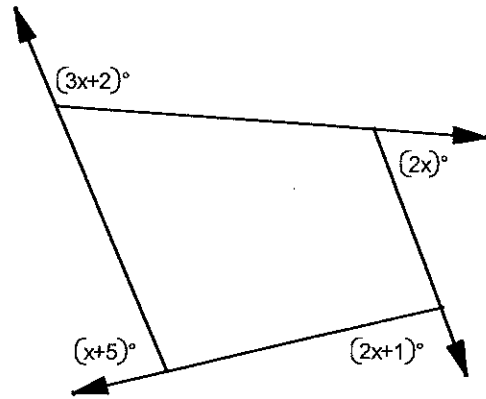
16. 157.5°

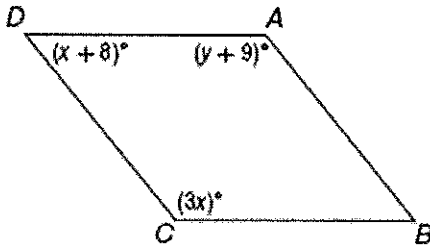   16 sides

17. Find the value of x.

A
(2x+7)°
E
(x-8)°
B
(x+8)°
(3x-11)°
C
(x)°
D

x = 68

18. Find the value of x.

(3x+2)°
(2x)°
(x+5)°
(2x+1)°

x = 44

19. Find x and y so that the quadrilateral is a parallelogram.

D
A
(x + 8)°
(y + 9)°
(3x)°
C
B

x = 43

y = 120

20. Find x and y so that the quadrilateral is a parallelogram.

O
P
4x − 2
3y − 1
y + 5
x + 10
N
Q
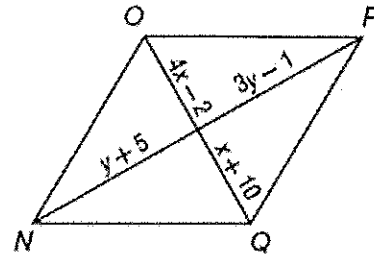
x = 4

y = 3

Use parallelogram *RSTU* to find each measure.

21. m∠RST = 125°

22. m∠STU = 55°

23. m∠TUR = 125°

24. b = 6

R
25°
S
30°
B
23
4b − 1
U
T
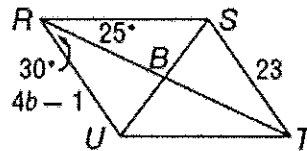
Determine whether each quadrilateral is a parallelogram. Justify your answer.
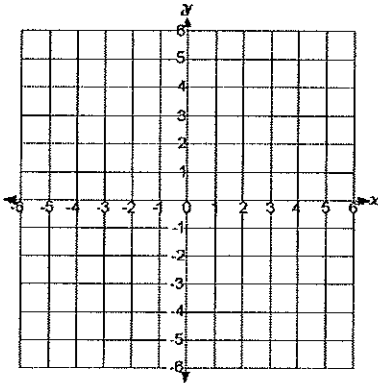
25.
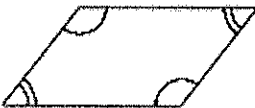
Yes.

26.

No.

27. Find the coordinate of the intersections of the diagonals of parallelogram $ABCD$ with vertices, $A(-2,4), B(-3,-4), C(2,-3), D(3,5)$.

$$\left(0, \frac{1}{2}\right)$$

28. Determine if $JKLM$ is a parallelogram given the coordinates $J(-4,-4), K(3,-3), L(4,3), M(-3,2)$. Justify your answer with the slope formula and/or distance formula.

Choose one

Process #1 : show opposite sides are parallel

Process #2 : show opposite sides are congruent

Process #3 : show diagonals bisect

Quadrilateral $ABCD$ is a rectangle if $m\angle 2 = 68°$.

29. $m\angle 1 = $ ___ $22°$

30. $m\angle 3 = $ ~~___~~ $68°$

31. $m\angle 4 = $ ~~___~~ $22°$

32. $m\angle 5 = $ ___ $136°$

33. $m\angle 6 = $ ___ $22°$

34. $m\angle 7 = $ ___ $68°$
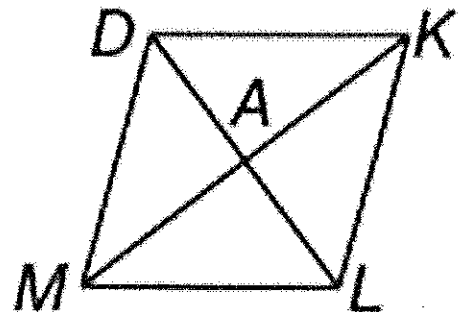
35. $m\angle 8 = $ ___ $44°$
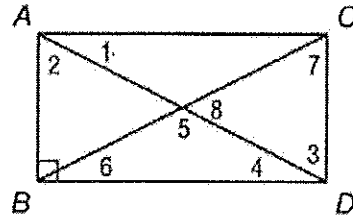
Quadrilateral $DKLM$ is a rhombus.

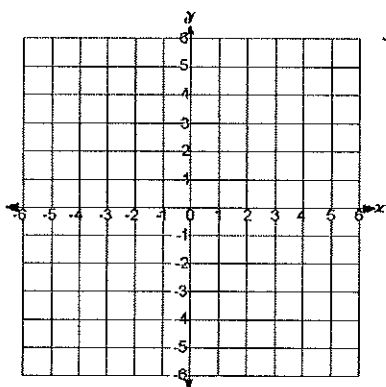**36.** If $DM = 5y + 2$ and $DK = 3y + 6$, find KL.

$$KL = 12$$

37. If $m\angle KAL = 2x - 8$, find x.

$$x = 49$$

Given each set of vertices, determine whether *QRST* is a rhombus, rectangle, or square. List all that apply. Justify your answer.

38. $Q(3, 5), R(3, 1), S(-1, 1), T(-1, 5)$

Choose one from each section

Rhombus

Process #1: Show diagonals perpendicular
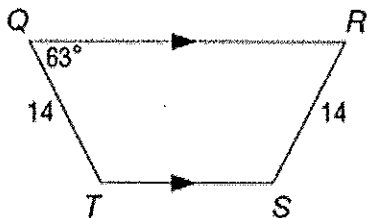
Process #2: Show all sides congruent

Rectangle

Process #1: Show diagonals congruent
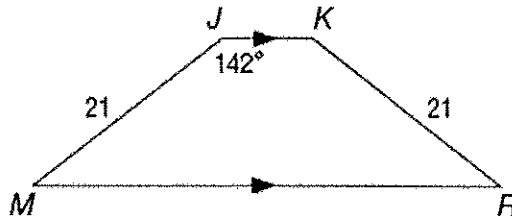
Process #2: Show all angles are right angles

Square

Both rectangle & rhombus

39. Find $m\angle S$

$m\angle S = 117°$

40. Find $m\angle M$

$m\angle M = 38°$

41. Quadrilateral *ABCD* has vertices $A(-4, -1), B(-2, 3), C(3, 3), D(5, -1)$.

a. Verify that *ABCD* is a trapezoid.

Show exactly one pair of sides is parallel.

b. Determine whether *ABCD* is an isosceles trapezoid. Explain.

Choose one process

Process #1

Show nonparallel sides are congruent

Process #2

Show diagonals are congruent