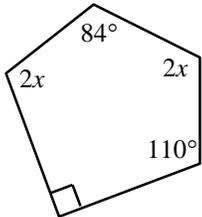Name_____

Show all work for full credit.   Date_____Period_____
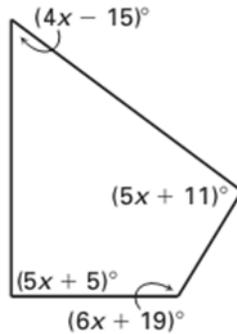
1. Determine the sum of the interior angles for a 20-gon.

2. Determine the measure of each interior angle for a regular pentagon.

3. Determine the measure of each exterior angle for a regular octagon.

4. Determine the measure of the sum of the exterior angles of a regular hexagon.

5. A regular n-gon has an interior angle of 150°. Find the number of sides.

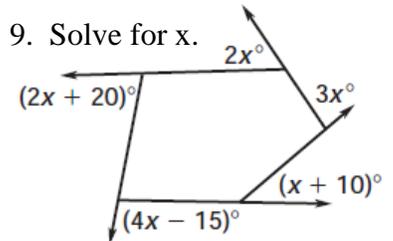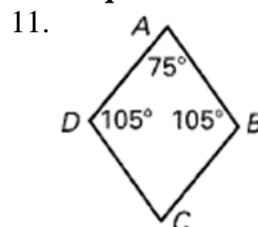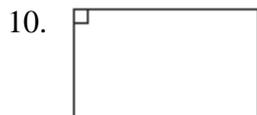6. A regular polygon has an exterior angle of 8°. How many sides does it have?

7. Solve for x.

84°

$2x$ $2x$

110°

8. Solve for x.

$(4x - 15)°$

$(5x + 11)°$

$(5x + 5)°$

$(6x + 19)°$

9. Solve for x.

$2x°$

$(2x + 20)°$ $3x°$

$(4x - 15)°$ $(x + 10)°$

Based on the information given, determine whether the quadrilateral is a parallelogram. Explain.
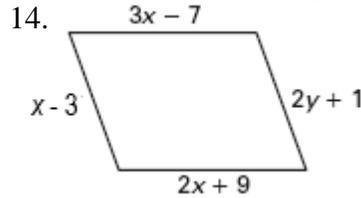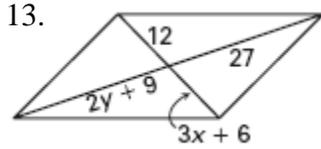
10.

11.

A

75°

D $105°$ $105°$ B

C

12. **Find the indicated measures in the parallelogram *HIJK*.**

a. *HI*= b. *KH*= c. *GH*=

d. $m\angle KIH =$ e. $m\angle JIH =$ f. $m\angle KJI =$
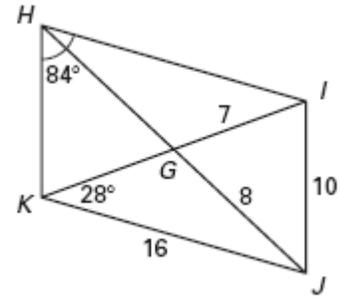
Find the value of each variable that makes the quadrilateral a parallelogram.

13.

14.

15. **True/False: Decide if you are given enough information to prove the quadrilateral is a parallelogram.**
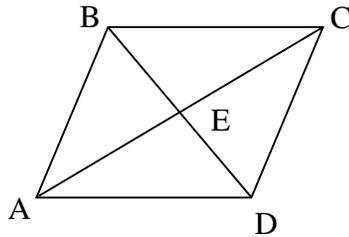
a. One angle is an obtuse angle.

b. Two pairs of opposite sides are congruent.

c. One pair of angles is congruent.

Determine if the parallelogram is a rectangle, rhombus, or a square. Explain.

16.

17.

18. $\overline{NP} \cong \overline{OQ}$
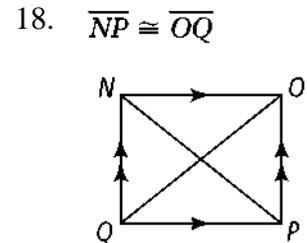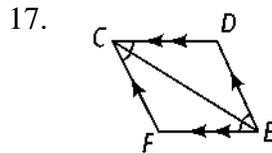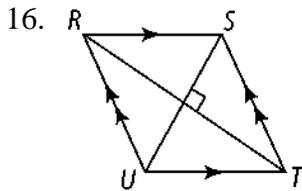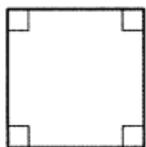
21. **Quadrilateral *ABCD* is a rhombus. (See diagram)**

a. If $m\angle EDC = 43°$, find $m\angle CBA$.
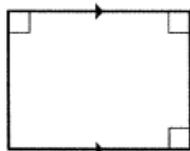
b. If $m\angle EAB = 57°$, find $m\angle ADC$.

c. If $m\angle ADE = (5x - 8)°$ and $m\angle CBE = (3x + 24)°$, solve for *x*.

d. If $m\angle BAD = (4x + 14)°$ and $m\angle ABC = (2x + 10)°$, solve for *x*.

22. Give the most specific name for each of the following quadrilaterals (quadrilateral, *trapezoid, kite, parallelogram, rectangle, rhombus* or *square*). Then give a short <u>explanation</u> why.
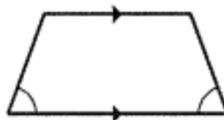
a.
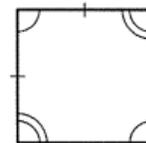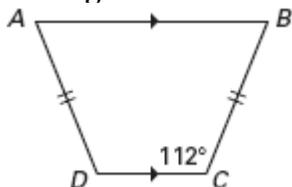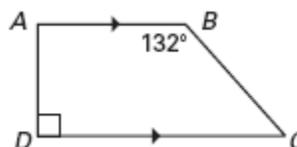
b.

c.

d.

Find the angle measures of *ABCD*.

23.

A B
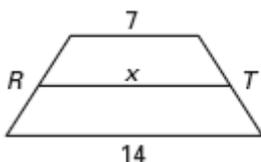
$112°$

D C

24.

A $132°$ B

D C

The midsegment of each trapezoid is $\overline{RT}$. Find the value of *x*.

25.

7

R x T

14

26.

R

24 13 x

T
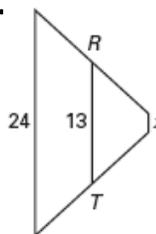
Use the diagram of the kites shown to find:

27. x

5x-8

6x-1

5x-3

4x+4

28. $m\angle Q$ and $m\angle S$

Q

P $110°$

$48°$ R
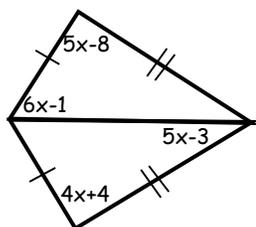
S
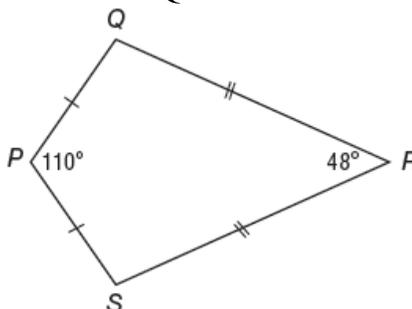
29. **Determine whether the statement is *always, sometimes* or *never* true.**

a. A rhombus is a square

b. A rectangle is a rhombus

c. The diagonals of a trapezoid are congruent.

d. A square is not a rhombus.

e. All angles of a parallelogram are congruent.

f. Opposite angles of an isosceles trapezoid are congruent.

30. The coordinates of the vertices of parallelogram ABCD are A(-3, 2), B(-2, -1), C(4, 1), and D(3, 4). The slopes of which line segments could be calculated to show that ABCD is a rectangle?

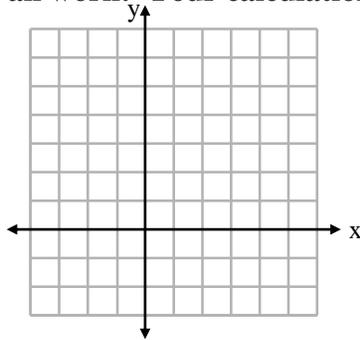   A. $\overline{AB}$ and $\overline{DC}$ B. $\overline{AB}$ and $\overline{BC}$ C. $\overline{AD}$ and $\overline{BC}$ D. $\overline{AC}$ and $\overline{BD}$

The coordinates form quadrilateral *ABCD*. Determine the most specific name for the quadrilateral. Show all work! Your calculations must support the type of quadrilateral chosen.

31.   A(-4, 0)
           B(-1, 6)
           C(6, 6)
           D(6, 0)

32.   G(-4, -2)
        H(-7, 2)
        I(-4, 6)
        J(3, 2)