Geometry Unit 4 Practice Test   **Name** _____

Figures are not drawn to scale.

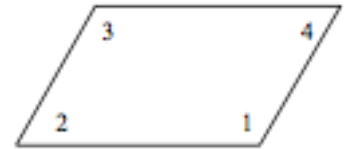**1)** Find the values of the variables and the lengths of the sides of this kite.

$y-2$ $x+2$

$2x+2$ $x+11$
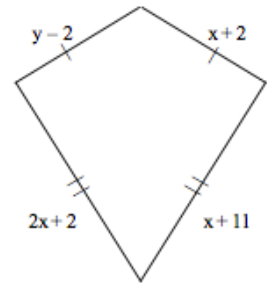
2) What is the most precise name for quadrilateral ABCD with vertices A(–5, 2), B(–3, 6), C(6, 6), and D(4, 2)?

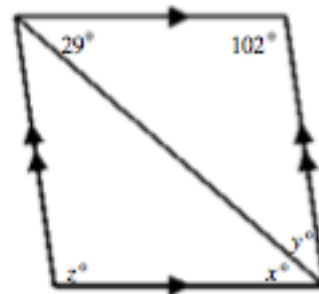**3)** *ABCD* is a parallelogram. If $m\angle CDA = 66$, then $m\angle BCD =$ _____?

4) *ABCD* is a parallelogram. If $m\angle DAB = 115$, then $m\angle BCD =$ _____?

5) *LMNO* is a parallelogram. If $NM = x+15$ and $OL = 3x+5$, find the value of *x and then find NM and OL.*
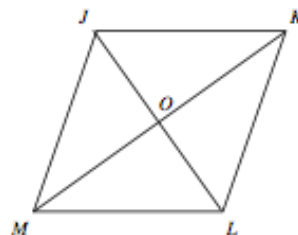
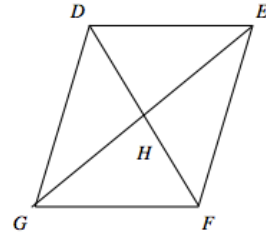**6)** For the parallelogram, if $m\angle 2 = 5x-28$ and $m\angle 4 = 3x-10$, find $m\angle 3$

3   4

2   1

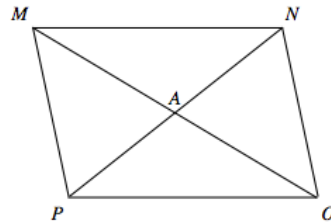**7)** Find the values of the variables in the parallelogram.

29°   102°

$y°$

$z°$ $x°$

8) In the parallelogram, $m\angle KLO = 68$ and $m\angle MLO = 61$. Find $m\angle KJM$
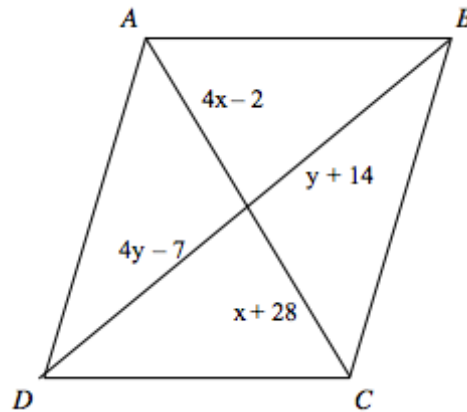
J   K

O

M   L

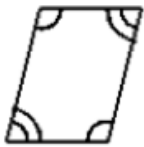**9)** In parallelogram *DEFG*, $DH = x+3$, $HF = 3y$, $GH = 4x-5$ and $HE = 2y+3$. Find the values of *x* and *y*

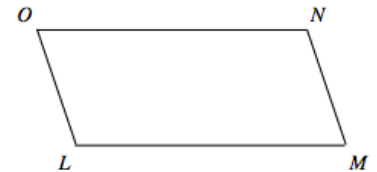**10)** Find *AM* in the parallelogram if *PN* = 9 and *AO* = 4.

11) Find values *x* and *y* for which *ABCD* must be a parallelogram
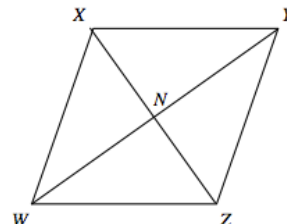

12) Based on the information shown in the diagram, can you prove that the figure is a parallelogram? Explain.
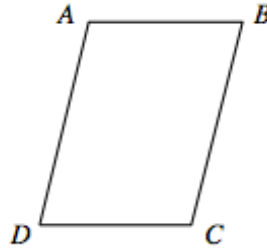

13) Based on the information given, can you determine that the quadrilateral must be a parallelogram? Explain..
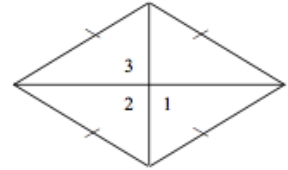

14) If $ON = 5x-4, LM = 4x+7, NM = x-7$, and $OL = 2y-6$, find the values of *x* and *y* for which *LMNO* must be a parallelogram.

15) If $m\angle B = m\angle D = 41$, find $m\angle C$ so that quadrilateral *ABCD* is a parallelogram.
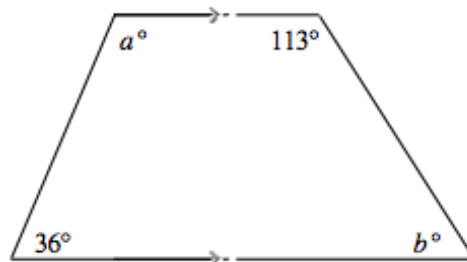

16) In the rhombus, $m\angle 1 = 6x$, $m\angle 2 = x + y$, and $m\angle 3 = 18z$. Find the value of each variable.
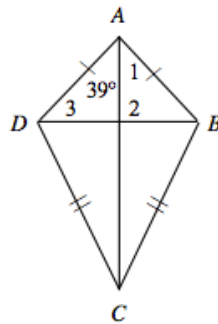

17) *DEFG* is a rectangle. $DF = 5x - 5$ and $EG = x + 11$. Find the value of *x* and the length of each diagonal.
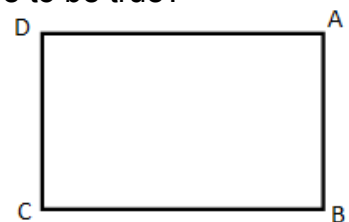
18) Find the values of *a* and *b*.

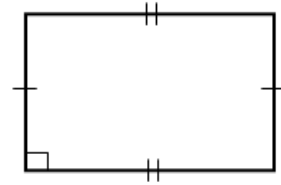**19)** Find $m\angle 1$ and $m\angle 3$ in the kite.

20) $m\angle J$ and $m\angle M$ are base angles in isosceles trapezoid *JKLM.* If $m\angle J = 20x + 9$, and $m\angle M = 14x + 15$, find $m\angle K$.

21) In order to prove quadrilateral ABCD is a rectangle, what would have to be true?

22) State all possible names of the quadrilateral shown:

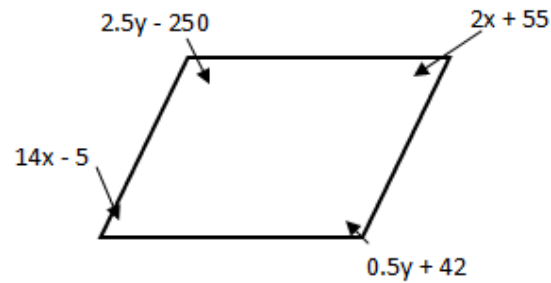**23) Answer each statement True or False**

A kite has congruent diagonals.   A kite has 2 pair of parallel sides.
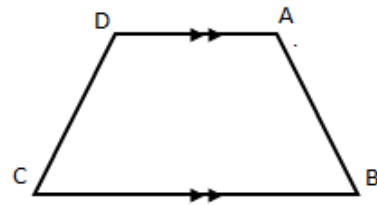
A kite has perpendicular diagonals.   A kite has diagonals that bisect each other.

24) If possible, find the missing values for the parallelogram shown.

2.5y - 250   2x + 55

14x - 5

0.5y + 42

25) If possible, use the properties of an isosceles trapezoid to find the measure of angle B and angle D.
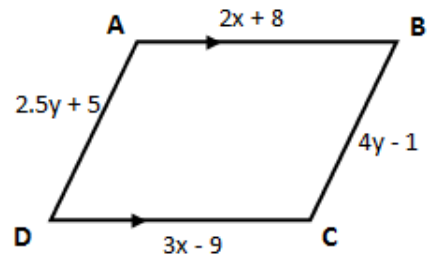
D   A

C   B

26) Assume $g \parallel h$ and $k \parallel l$. Find the measure of the four angles marked on the figure.
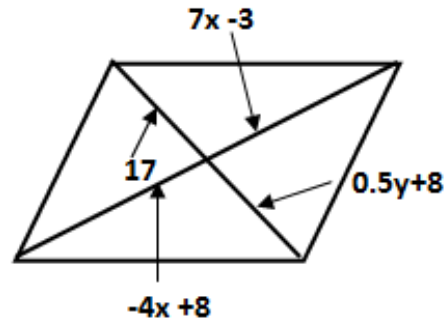
D   C g

2x + 14 A   B

3x - 26 h

k l
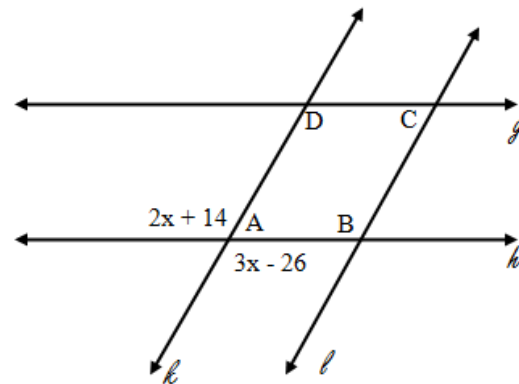
27) What is the sum of the interior angles of a quadrilateral?

28) Using the properties of parallelograms, find the missing values:

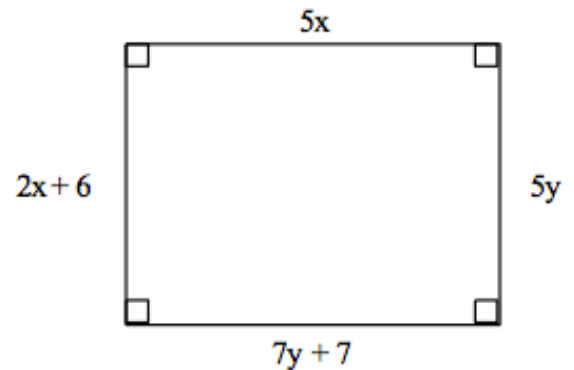A   2x + 8   B

2.5y + 5

4y - 1

D   3x - 9   C

29) Using the properties of parallelograms, find the missing values:

7x -3

17

0.5y+8

-4x +8

30) Using the properties of rhombuses, find the measure of each angle.

7v-22   A   B
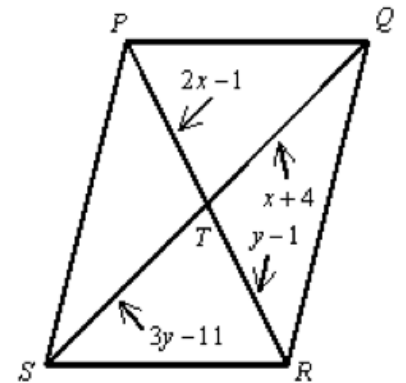
4v+11

D   C
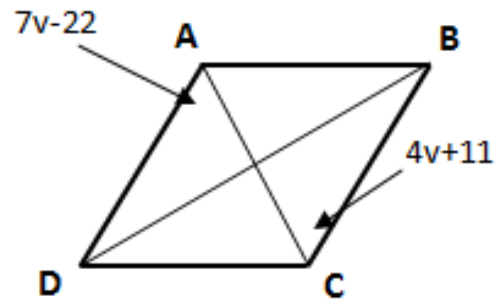
31) Find the values of the variables and the lengths of the sides of this rectangle.
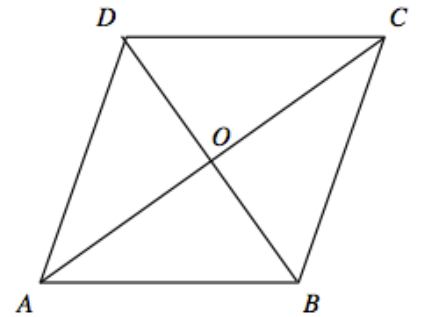
5x

2x+6

5y

7y +7

32) What type of quadrilateral has exactly one pair of parallel sides?

33) Isosceles trapezoid *ABCD* has legs $\overline{AB}$ and $\overline{CD}$ and base $\overline{BC}$. If $\overline{BO} \cong$ __?__, find the value of *y*.
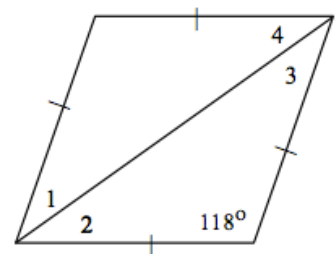
34) For parallelogram *PQRS*, find the values of *x* and *y*. Then find *PT, TR, ST, and TQ*.

35) Complete the statement: For parallelogram *ABCD*, $\overline{BO} \cong$ __?__. *Then state a theorem or definition that justifies your answer.*

36) Give the name that best describes the parallelogram and find the measures of the numbered angles.

37) Judging by appearance, classify the figure in as many ways as possible using *rectangle, trapezoid, square, quadrilateral, parallelogram, rhombus.*