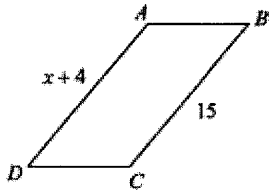
Quadrilaterals and Polygons REVIEW Name Key Date_____ Period____

Solve for x. The figure below is a parallelogram:

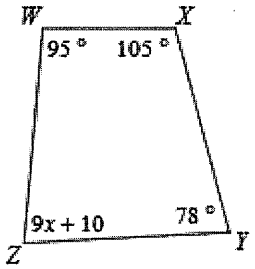
1.



$x+4=15$

$\boxed{x=11}$

2.



$180 \cdot (\#\text{ of sides} - 2)$

$180 \cdot 2 = 360$

$95+105+78+9x+10=360$

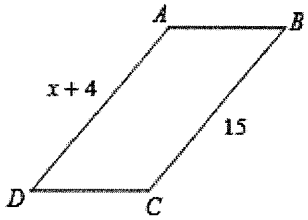
$9x+288=360$

$9x=72$

$\boxed{x=8}$

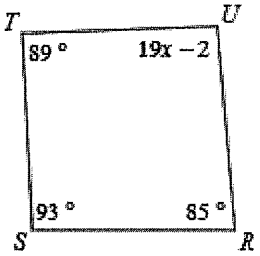
Solve for x. The figure below is a parallelogram:

3.



$\boxed{x=11}$

4.



$267+19x-2=360$

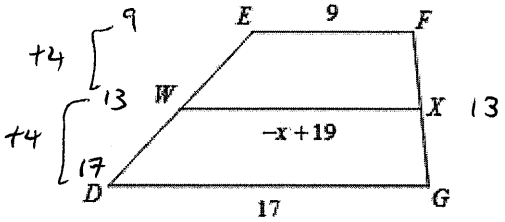
$19x=95$

$\boxed{x=5}$

Solve for x. The figure below is a trapezoid:

midsegment $= \frac{1}{2}(\text{base} + \text{base})$

5.



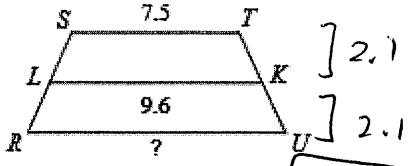
$-x+19=13$

$-x=-6$

$\boxed{x=6}$

Find the length of the base indicated by the trapezoid

6.



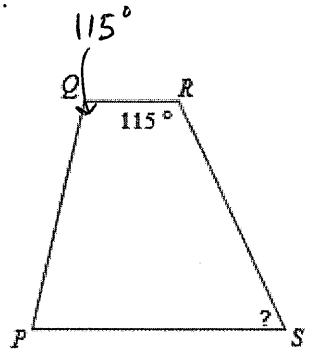
2.1

2.1

$\boxed{11.7}$

Find the measurement of the missing angles indicated for each trapezoid

7.



$m\angle S$ 65

$m\angle Q$ 115°

$m\angle P$ 65°

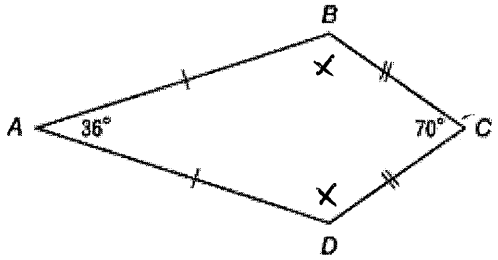
Find the indicated angle measures:

$2x+36+70=360$

$2x=254$

$x=127$

8.

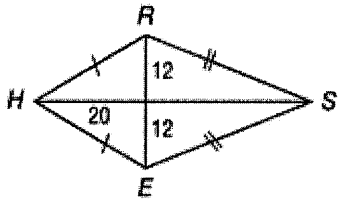


$m\angle B$ 127

$m\angle D$ 127

Find the indicated side lengths of the kite below:

9.

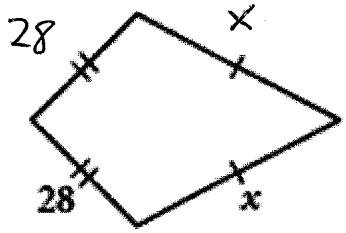


$RH =$ $4\sqrt{34}$

$12^2+20^2=RH^2$

$RH=\sqrt{544}$

10. The perimeter of this kite is **116**. Find x.



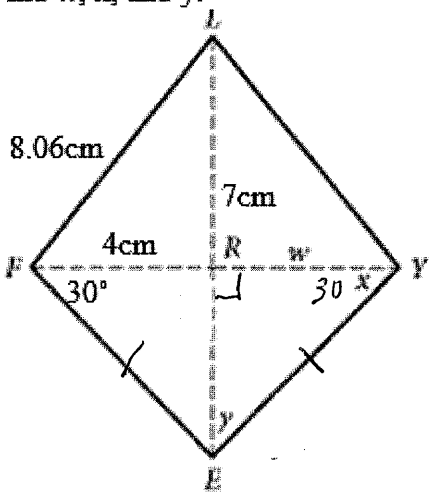
$56+2x=116$

$2x=60$

$\boxed{x=30}$

11.

FLYE is a kite with FL = LY.
Find w, x, and y.

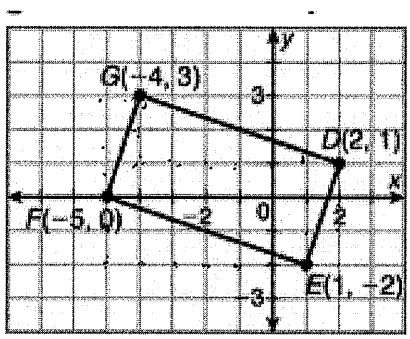


$w = 4$

$x = 30°$

$y = 60°$

12. Use distance and slope to verify whether parallelogram below is a rectangle, rhombus, or a square.



$DE = 1 + 3^2 = \sqrt{10}$

$EF = 2^2 + 6^2 = \sqrt{40} = 2\sqrt{10}$

$FG = 1^2 + 3^2 = \sqrt{10}$

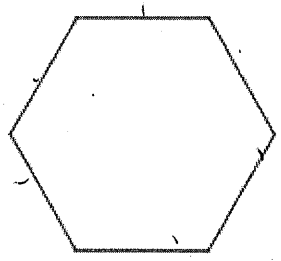
$DG = 2^2 + 6^2 = \sqrt{40}$

$m_{ED} = 3/1$ $\quad m_{DG} = -1/3$

$m_{FG} = 3/1$ $\quad m_{EF} = -1/3$

13. Find the measure of one interior angle in each polygon. Round your answer to the nearest tenth if necessary.

$n = 6$



$$\frac{180(4)}{6} = 120°$$

14. If the sum of the interior angles is 2340°, find the number of sides for the polygon.

$S = 2340$

$S = 180(n-2)$

$2340 = 180n - 360$

$2700 = 180n$

$\boxed{n = 15}$

15. If each of the exterior angles is 30°, find the number of sides for the polygon

$\text{Angle} = \frac{360}{n}$ $\quad$ $\text{Angle} = \frac{360}{30} = 12°$ sides

16. If each of the interior angles is 135°, find the number of sides for the polygon

$\text{angle} = \frac{180(n-2)}{n}$ $\quad$ $\frac{135}{1} = \frac{180(n-2)}{n}$ $\quad$ $135n = 180n - 360$, $45n = 360$ $\quad$ $\boxed{n = 8}$

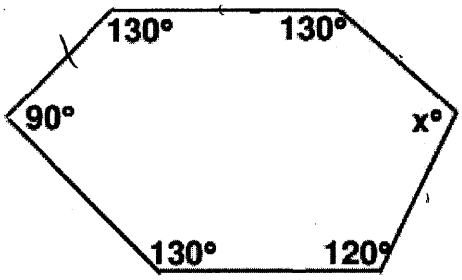
17. Find the other endpoint of the line segment with the given endpoint and midpoint.

Endpoint: (8, -8), midpoint: (5, 3)

$$\begin{array}{c} -3 \\ M \\ -3 \end{array} \begin{bmatrix} 8 & 14 \\ 5 & 3 \\ 2 & -8 \end{bmatrix} \begin{array}{l} \text{''} \\ \text{''} \end{array}$$

$\boxed{(2, 14)}$

18. Solve for x:

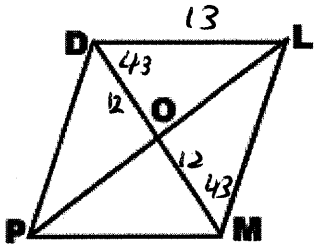


$n = 6$ $\quad$ $180(4) = 720$

$90 + 130(3) + 120 + x = 720$

$x + 600 = 720$ $\quad$ $\boxed{x = 120°}$

19. In rhombus DLMP, DM = 24, m∠LDO = 43°, and DL = 13. Find each of the following.



a) OM = 12

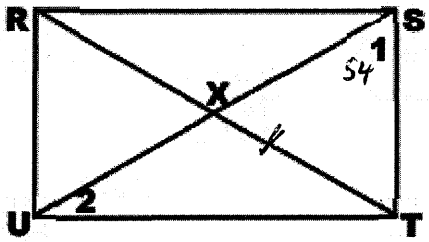
b) m∠DOL = 90°

c) m∠DLO = 47°

d) m∠DML = 43°

e) DP = 13

20. Use the following rectangle for parts a and b



a) m∠1 = 54°, find m∠2.

36°

b) If XT = 2y – 3 and US = 32, solve for y.

$XT + XT = US$

$2(2y - 3) = 32$

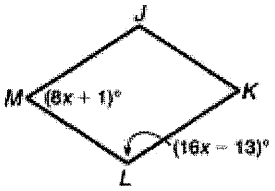
$4y - 6 = 32$

$4y = 38$

$\boxed{y = 9.5}$

21.

In ▱*JKLM*, what is the value of m∠*K*?



F 15° H 65°

G 57° J 115°

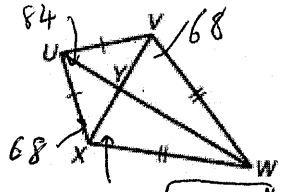
$16x - 13 + 8x + 1 = 180$

$24x - 12 = 180$

$24x = 192$ $\boxed{x = 8}$

22.

In kite *UVWX*, m∠*XUV* = 84°, and m∠*WVX* = 68°. What is m∠*VWX*?



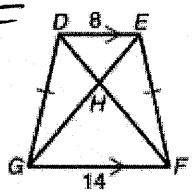
$136 + 136 + 84 + x = 360$

F 22° H 44°

G 42° J 45°

23.

GE = 5*x* + 2 and *DF* = 8*x* − 7.
What is *GE*?



$8x - 7 = 5x + 2$

$3x = 9$

$\boxed{x = 3}$

$GE = 5(3) + 2$

A 16

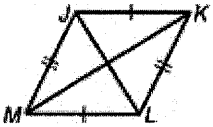
B 17

C 18

D 19

24.

What additional information would allow you to conclude that *JKLM* is a rhombus?



F $\overline{JK} \parallel \overline{ML}$ and $\overline{JM} \parallel \overline{KL}$.

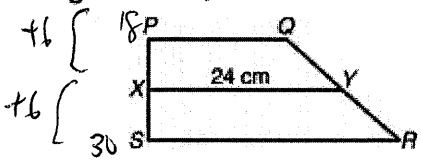
G $\overline{JM} \cong \overline{JK}$

H $\overline{JL}$ and $\overline{MK}$ bisect each other.

J $\overline{JL} \cong \overline{MK}$

25.

In trapezoid *PQRS*, if $\overline{YX}$ is the midsegment, what could be the lengths of $\overline{PQ}$ and $\overline{SR}$?



F 4 cm and 8 cm

G 9 cm and 15 cm

H 17 cm and 31 cm

J 18 m and 30 m

26.

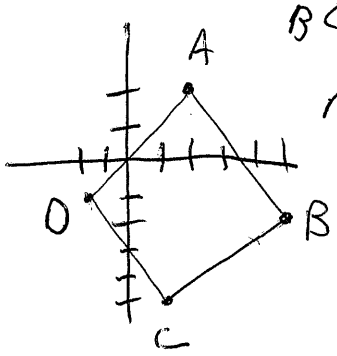
Which is the best name for the quadrilateral with vertices at (2, 2), (5, −2), (1, −5), and (−2, −1)?

A parallelogram C rhombus

B rectangle D square

$AB = 3^2 + 4^2 = 5$

$BC = 4^2 + 3^2 = 5$



$m_{AB} = -4/3$

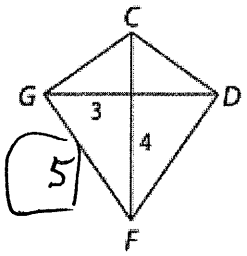
$m_{BC} = 3/4$

Square

If *CDFG* is a kite, find each measure.

27.

GF



5

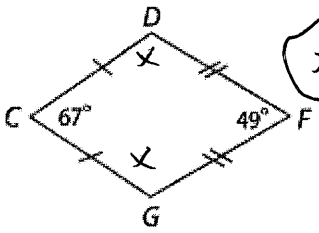
28.

$2x+67+49=360$

$m\angle D$

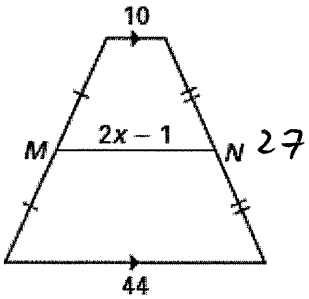
$2x=244$

$x=122°$



Find the value of x:

29.



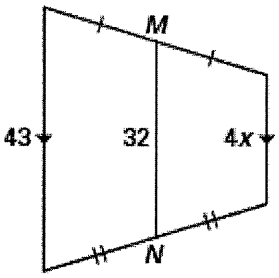
$2x-1=27$

$2x=28$

$x=14$

30.

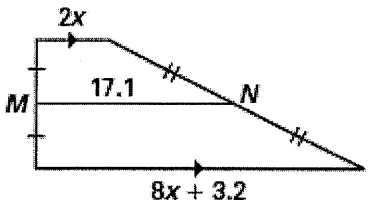
11 11 21



$4x=21$

$x=5.25$

31.



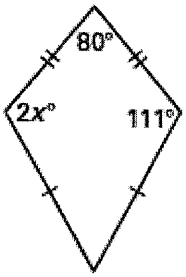
$17.1=\frac{1}{2}(2x+8x+3.2)$

$17.1=5x+1.6$

$15.5=5x$

$x=3.1$

32.



$2x=111$

$x=55.5$

WXYZ is a square. If WT = 3, find each measure.

33.

a) $m\angle WYX =$ 45°

b) YZ = $3\sqrt{2}$

c) $m\angle WTZ =$ 90°

d) XZ = 6