

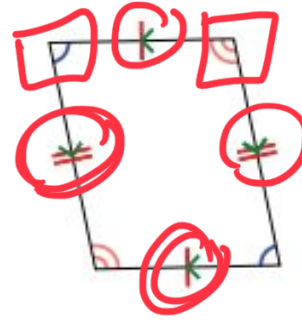
Geometry Chapter 6 Pre-Test

1.) (2.5 pts each, 5 pts total) Name each of the following shapes. Place a check beside each category of shape for which it qualifies.

a) Name of Shape: parallelogram

This shape also fall under the category of:

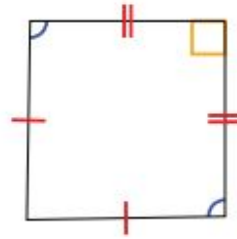
- kite
- parallelogram
- quadrilateral
- rectangle
- rhombus
- square
- trapezoid



b) Name of Shape:

This shape also fall under the category of:

- kite
- parallelogram
- quadrilateral
- rectangle
- rhombus
- square
- trapezoid



2.) (5 pts total) Determine the most exact name for the quadrilateral with the given vertices.

$(-3, -2), (-3, 1), (0, 2), (0, -1)$

may use distance formula

$(-3, 1) (0, 2)$

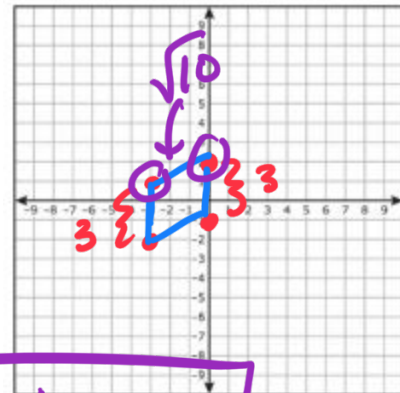
$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\sqrt{(-3 - 0)^2 + (1 - 2)^2}$$

$$\sqrt{(-3)^2 + (-1)^2}$$

$$\sqrt{9 + 1} = \sqrt{10}$$

parallelogram



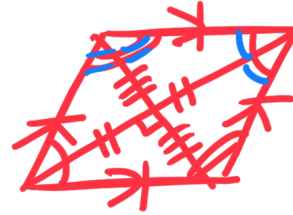
3.) (2.5 pts each, 5 pts total) Draw out the indicated shape. Include congruent sides, congruent angles, and congruent diagonal lengths where necessary. Indicate all appropriate 90° angles and parallel lines as well.

a) rhombus

Draw shape

- angles
- sides congruences
- parallels

- Diagonals
- Diagonal bisectors



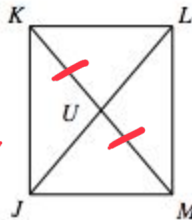
b) parallelogram

4.) (5 pts each, 15 pts total) Find the value of x in each parallelogram.

a)

$$KU = 3x + 3$$

$$UM = 4x - 4$$



parallelograms have diagonal bisectors

$$\overline{KU} = \overline{UM} \quad +3$$

$$\downarrow \quad \downarrow$$

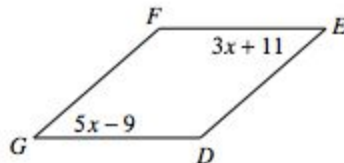
$$3x + 3 = 4x - 4$$

$$\begin{array}{r} -3x \quad -3x \quad +0.5 \\ 3 = x - 4 \end{array}$$

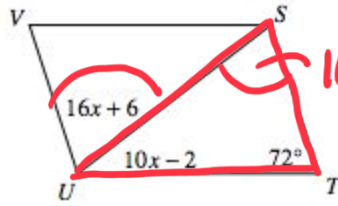
$$\begin{array}{r} +4 \quad +4 \quad +0.5 \\ 7 = x \end{array}$$

7 = x

b)



c)



parallelogram

Alternate interior angles

parallels \rightarrow alt int. angles $16x+6+10x-2+72=180$

$$26x + 76 = 180$$

$$\begin{array}{r} -76 \\ -76 \end{array}$$

$$\frac{26x}{26} = \frac{104}{26}$$

$$\boxed{x=4}$$

5.) (5 pts each, 15 pts total) Use your knowledge of the properties of rectangles to answer each of the following.

a) Find $\angle 1$, $\angle 2$, and $\angle 3$.

$$\angle 1 =$$

$$\angle 2 =$$

$$\angle 3 =$$



Rectangle \rightarrow diagonals are congruent

b) $WY = 4x + 10$
 $TX = 3x - 2$

Find x.

$$2TX = WY$$

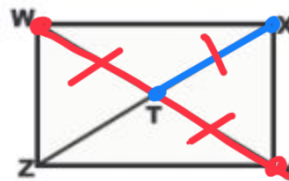
$$2(3x-2) = 4x+10$$

$$\begin{array}{r} 6x-4 = 4x+10 \\ -4x \quad -4x \end{array}$$

$$\begin{array}{r} 2x-4 = 10 \\ +4 \quad +4 \end{array}$$

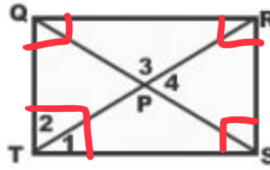
$$\frac{2x}{2} = \frac{14}{2}$$

$$\boxed{x=7}$$



Rectangle

c) $\angle 1 = 3x + 4$
 $\angle 2 = 2x + 6$
 $\angle 3 = 7x - 2$



Find x.

$\angle 1 + \angle 2 = 90$

$$3x + 4 + 2x + 6 = 90$$

$$5x + 10 = 90$$

$$\quad -10 \quad -10$$

$$5x = 80$$

$$\quad \frac{5}{5} \quad \frac{5}{5}$$

$x = 16$

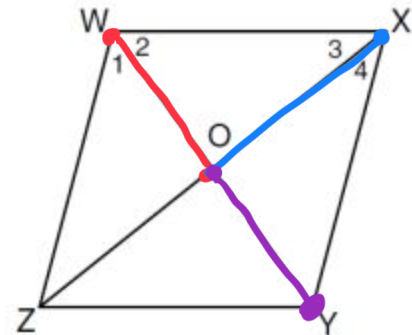
6.) (5 pts each, 10 pts total) Use your knowledge of the properties of rhombi to answer each of the following.

a) Find x.

$\overline{WO} = 4x + 8$
 $\overline{OX} = 3x + 12$
 $\overline{OY} = 5x - 3$



$\angle 1 \cong \angle 2$



$\overline{WO} = \overline{OY}$

$$4x + 8 = 5x - 3$$

$$\quad -4x \quad -4x$$

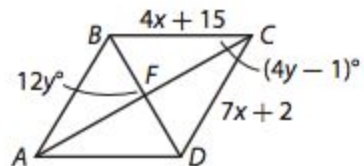
$$8 = x - 3$$

$$\quad +3 \quad +3$$

$x = 11$

$11 = x$

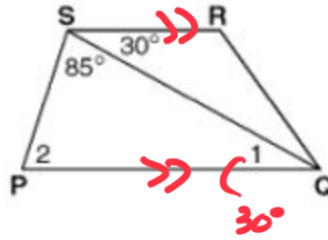
b) Find x and y.



Alternate Interior Angles

7.) (5 pts, 10 pts total) Use your knowledge of the properties of trapezoids to answer each of the following.

a) Find $\angle 1$ & $\angle 2$



$$\angle 1 = 30^\circ$$

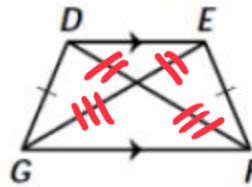
$$\angle 2 = 65^\circ \quad 85 + 30 + \angle 2 = 180$$

$$\begin{array}{r} 115 + \angle 2 = 180 \\ -115 \end{array} \quad \begin{array}{r} -115 \end{array}$$

$$\angle 2 = 65^\circ$$

b) Find x.

$$DF = 4x, EG = 2x + 16$$



Diagonals \rightarrow Length

Trapezoid diagonals
are congruent

$$DF = EG$$

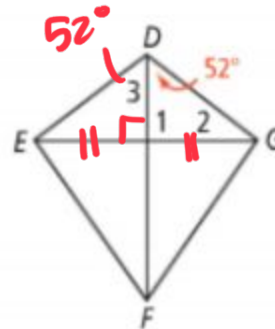
8.) (5 pts, 10 pts total) Use your knowledge of the properties of kites to answer each of the following.

a) Find the indicated angles.

$$\angle 1 = 90^\circ$$

$$\angle 2 = 38^\circ$$

$$\angle 3 = 52$$



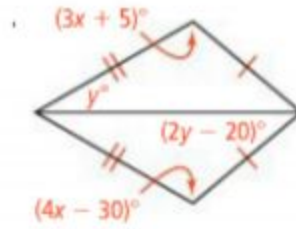
long
diagonal
is an
angle
bisector

$$52^\circ + \angle 1 + \angle 2 = 180$$

$$52^\circ + 90^\circ + \angle 2 = 180$$

$$\begin{array}{r} 142 + \angle 2 = 180 \\ -142 \end{array} \quad \begin{array}{r} \angle 2 = 38 \end{array}$$

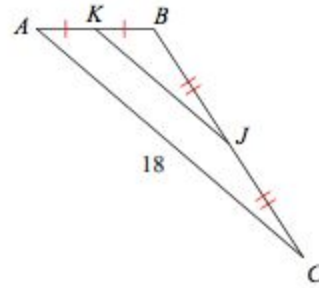
b) Find x and y.



9.) (5 pts each, 10 pts total) Find the length of variable indicated.

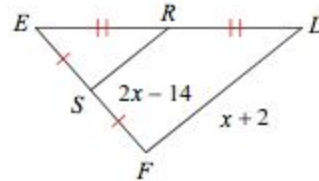
Midsegments

a) Find KJ



$$\overline{KJ} = \frac{18}{2} = 9$$

b) Find x.

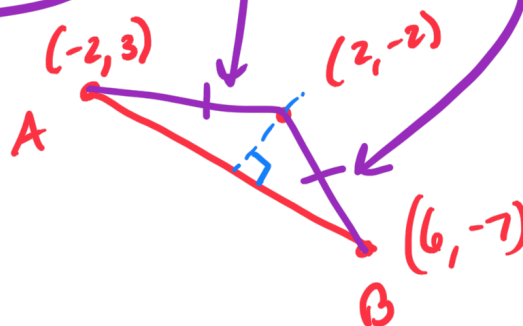


$$2\overline{SR} = \overline{FD}$$

$$2(2x - 14) = x + 2$$

10.) (5 pts) Is the point (2,-2) along the line forming a perpendicular bisector of the line segment AB if point A is (-2,3) and point B is (6,-7)? Show your work.

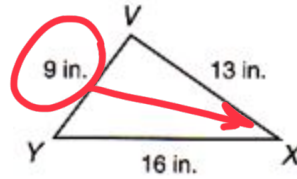
Distance Formula



11.) (2.5 pts each, 5 pts total) Use your knowledge of triangles to answer each of the following.

a) Order the angles within the triangle from least to greatest:

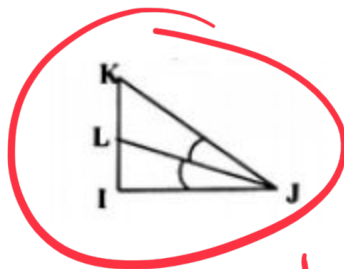
X, Y, V



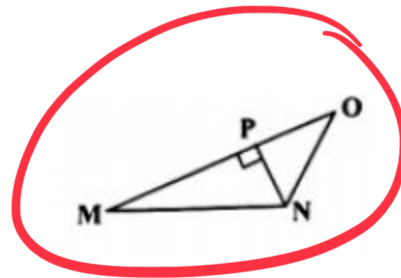
b) Can a triangle with the lengths 6 cm, 7 cm, and 14 cm exist? Clearly state why or why not.

sum smallest sides > largest side
 $6 + 7 > 14$
 false Now!

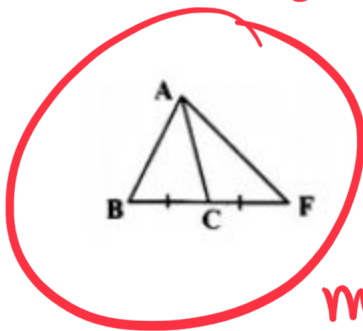
12.) (5 pts) Label each of the following.



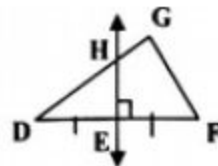
angle bisector



Altitude (height)



median



perpendicular bisector