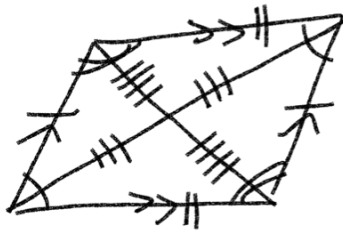
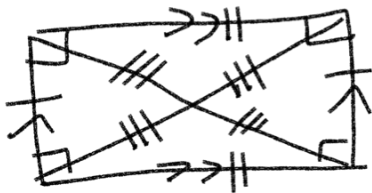


Parallelogram

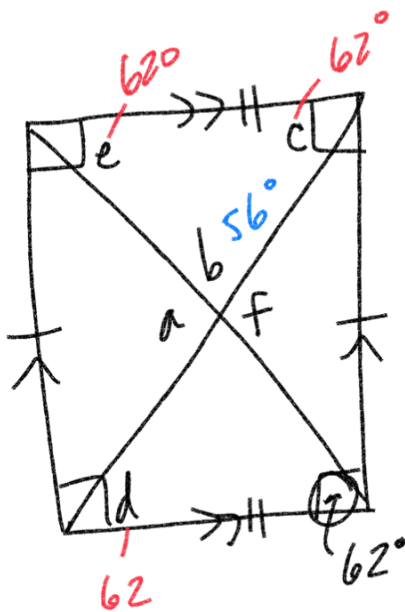


True for all parallelograms  
 - Diagonals are bisectors

Rectangle



4 equal angles  
 Diagonals are congruent  
 2 pairs of isosceles triangles



$a = 124^\circ$  vertical  
 $b = 56^\circ$  sum of interior angles of triangle  
 $c = 62^\circ$  isosceles  
 $d = 62^\circ$  isosceles  
 $e = 62^\circ$  alternate interior angles  
 $f = 124^\circ$  Linear pair

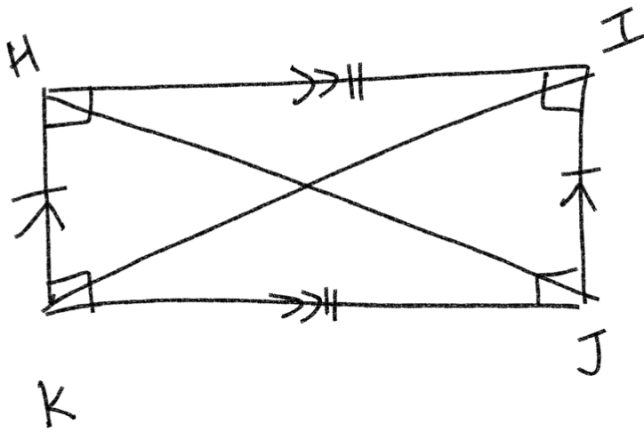
$$62 + 62 + b = 180$$

$$\begin{array}{r} 124 + b = 180 \\ -124 \quad -124 \end{array}$$

$$b = 56^\circ$$

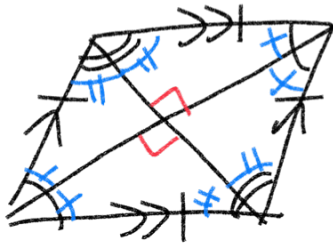
$$\begin{array}{r} 180 = 56 + f \\ -56 \quad -56 \end{array}$$

$$124 = f$$



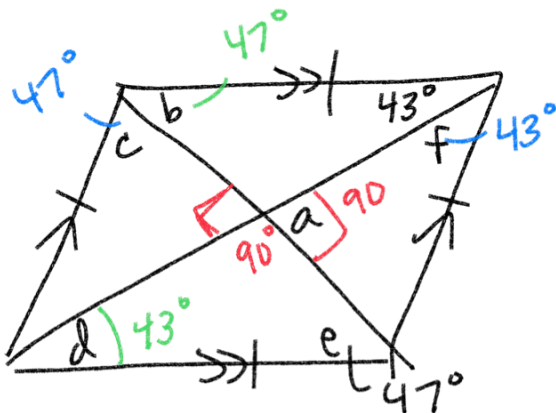
$$\begin{aligned} \overline{HJ} &= 3x + 7 \\ \overline{IK} &= 6x - 11 \\ \overline{HJ} &= \overline{IK} \\ 3x + 7 &= 6x - 11 \\ -3x &\quad -3x \\ 7 &= 3x - 11 \\ +11 &\quad +11 \\ 18 &= 3x \\ \frac{18}{3} &= \frac{3x}{3} \\ \boxed{6} &= x \end{aligned}$$

## Rhombus



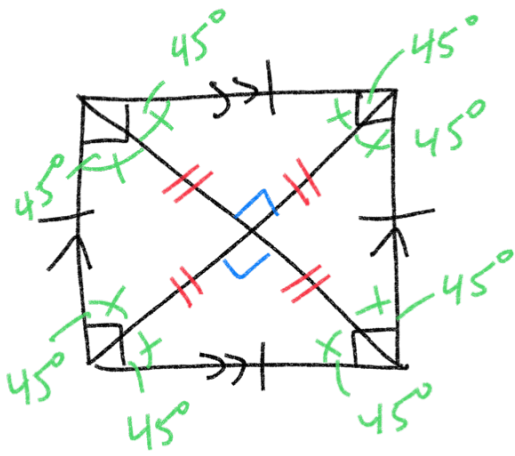
4 equal sides

Diagonals are  
perpendicular bisectors  
angle bisectors



$$\begin{aligned} 90 + 43 + e &= 180 \\ 133 + e &= 180 \\ -133 &\quad -133 \\ e &= 47 \end{aligned}$$

- a - 90° perp bisector
- b - 47° alt. interior angles
- c - 47° angle bisector
- d - 43° alt. interior angle
- e - 47° sum of interior
- f - 43° angle bisector



Square

4 equal angles

4 equal sides

parallelogram

diagonals are bisectors

Rectangle

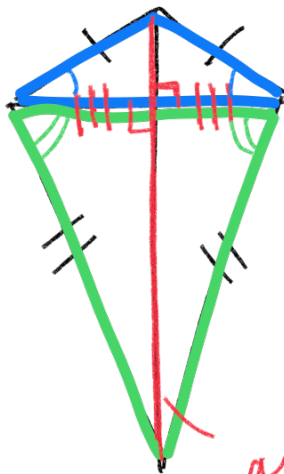
diagonals are congruent

Rhombus

diagonals are perpendicular bisectors

diagonals are angle bisectors

Kite



One diagonal is a perpendicular bisector

Isosceles triangle  
Isosceles triangle

angle bisector



# Trapezoid

"Isosceles Trapezoid"

Creates 2 isosceles triangles  
(top and bottom)

Congruent  
triangles

(SSS)

on the sides

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:

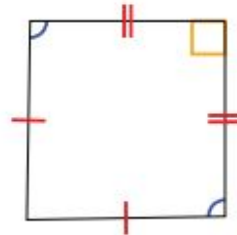
- kite
- parallelogram
- quadrilateral
- rectangle
- rhombus
- square
- trapezoid



b) Name of Shape:

This shape also fall under the category of:

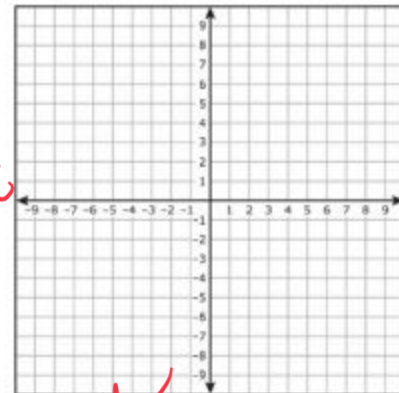
- kite
- parallelogram
- quadrilateral
- rectangle
- rhombus
- square
- trapezoid



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

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

*use distance formula to analyze side lengths*



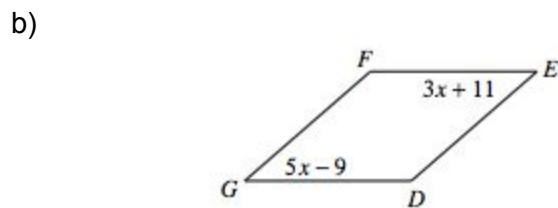
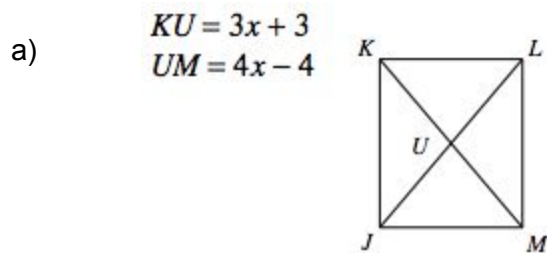
3.) (2.5 pts each, 5 pts total) Draw out the indicated shape. Include congruent sides, congruent angles, and congruent diagonal lengths where necessary. Indicate all appropriate  $90^\circ$  angles and parallel lines as well.

a) rhombus



b) parallelogram

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



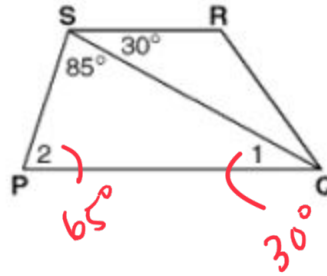
7.) (5 pts, 10 pts total) Use your knowledge of the properties of trapezoids to answer each of the following.

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

$$180 = 85 + 30 + x2$$

$$180 = 115 + x2$$

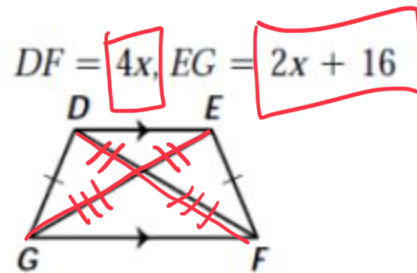
$$\begin{array}{r} -115 \\ -115 \\ \hline 65 = x2 \end{array}$$



b) Find x.

$$DF = EG$$

$$4x = 2x + 16$$



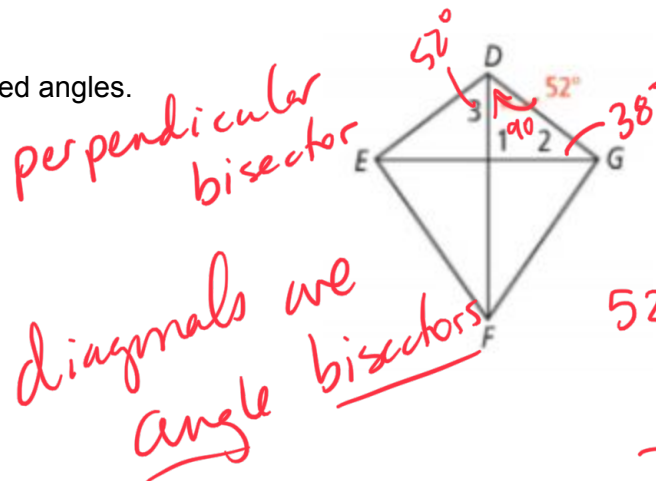
8.) (5 pts, 10 pts total) Use your knowledge of the properties of kites to answer each of the following.

a) Find the indicated angles.

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

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

$$\angle 3 = 52^\circ$$

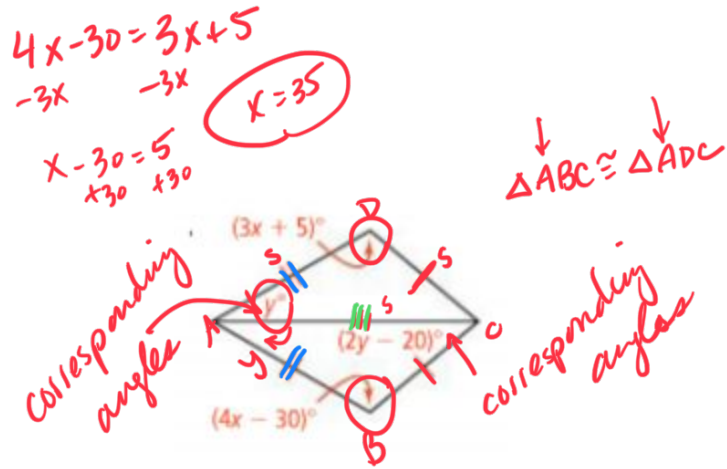


$$52 + 90 + x2 = 180$$

$$142 + x2 = 180$$

$$\begin{array}{r} -142 \\ -142 \\ \hline x2 = 38^\circ \end{array}$$

b) Find x and y.



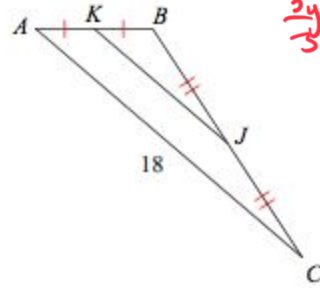
$4x - 30 + y + 2y - 20 = 180^\circ$   
 $4(35) - 30 + 3y - 20 = 180^\circ$   
 $140 - 30 + 3y - 20 = 180$

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

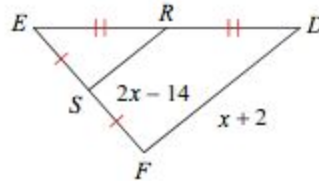
$90 + 3y = 180$   
 $-90 \quad -90$   
 $\frac{3y}{3} = \frac{90}{3}$   
 $y = 30$

a) Find KJ

9



b) Find x.



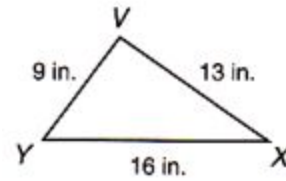
10.) (5 pts) Is the point (2,-2) along the line forming a perpendicular bisector of the line segment AB if point A is (-2,3) and point B is (6,-7)? Show your work.

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:



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

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

