

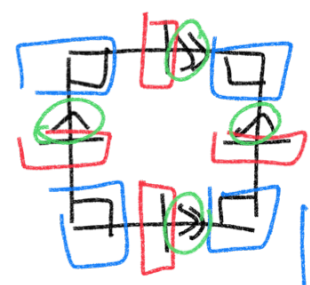
Shape: Rectangle → 4 equal angles  
parallelogram → two parallel sides  
quadrilateral → four sides

1.)



shape: kite  
 quadrilateral  
 no parallel sides  
 two sets of equal sides

2.)

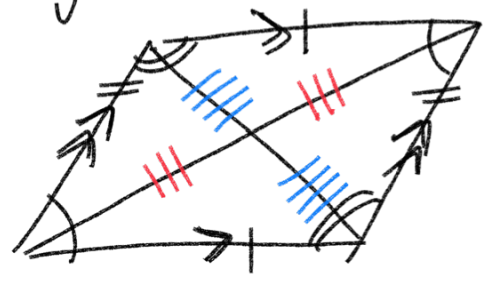


shape: square  


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rectangle  
rhombus  
parallelogram  
quadrilateral

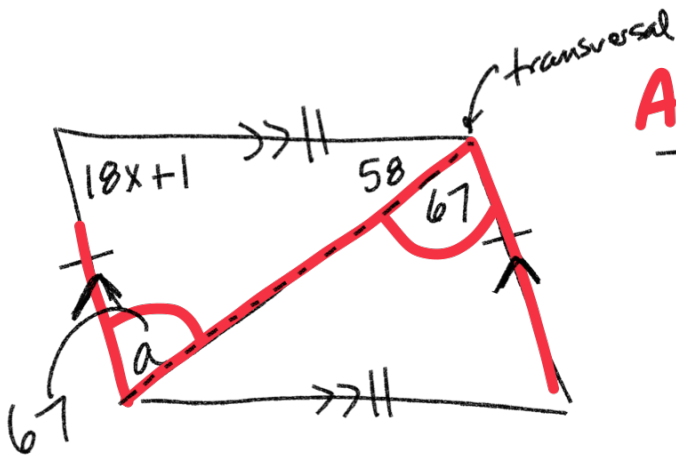
Parallelogram



Diagonals are bisectors

Look for (angles):  
 alternate interior angles  
 vertical angles

# Alternate Interior Angles



$$a = 67$$

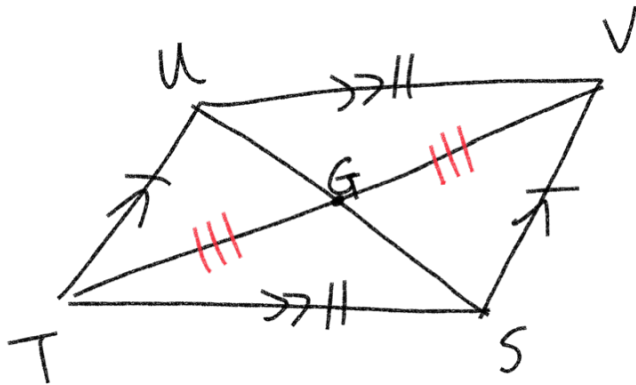
$$18x + 1 + 58 + 67 = 180$$

$$18x + 126 = 180$$

$$-126 \quad -126$$

$$\frac{18x}{18} = \frac{54}{18}$$

$$x = 3$$



$$\overline{GV} = 9$$

$$\overline{TU} = 2x - 2$$

$$\overline{GV} = \frac{1}{2} \overline{TU} \quad \text{or} \quad 2(\overline{GV}) = \overline{TU}$$

$$2(9) = 2x - 2$$

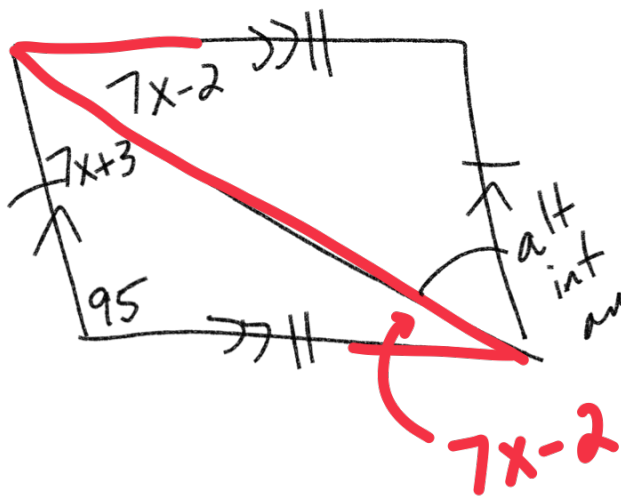
$$18 = 2x - 2$$

$$+2$$

$$+2$$

$$\frac{20}{2} = \frac{2x}{2}$$

$$10 = x$$



Solve for x.

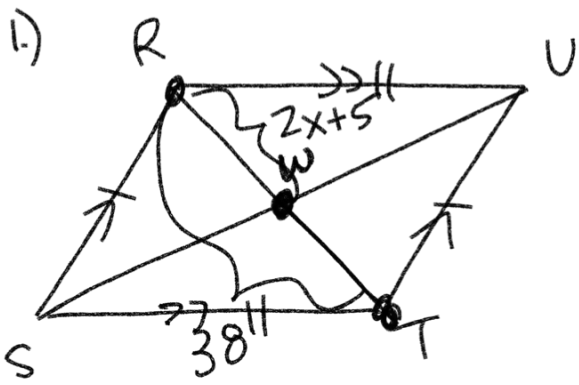
Strategy: Complete the 3 angles in a triangle

$$\begin{array}{r} \text{Angle 1} \\ \downarrow \\ 7x-2 \end{array} + \begin{array}{r} \text{Angle 2} \\ \downarrow \\ 7x+3 \end{array} + \begin{array}{r} \text{Angle 3} \\ \downarrow \\ 95 \end{array} = 180^\circ$$

$$\begin{array}{r} 14x + 96 = 180^\circ \\ -96 \quad -96 \end{array}$$

$$\begin{array}{r} 14x = 84 \\ \hline 14 \quad 14 \end{array}$$

$$\boxed{x = 6}$$



$$\overline{TR} = 38$$

$$\overline{WR} = 2x + 5$$

$$\overline{WR} = \frac{1}{2} \overline{TR}$$

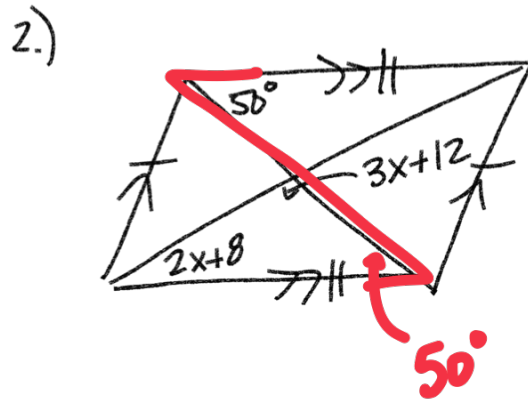
$$2\overline{WR} = \overline{TR}$$

$$2(2x + 5) = 38$$

$$4x + 10 = 38$$

$$\begin{array}{r} 4x + 10 = 38 \\ -10 \quad -10 \\ \hline 4x = 28 \\ \frac{4x}{4} = \frac{28}{4} \end{array}$$

$x = 7$



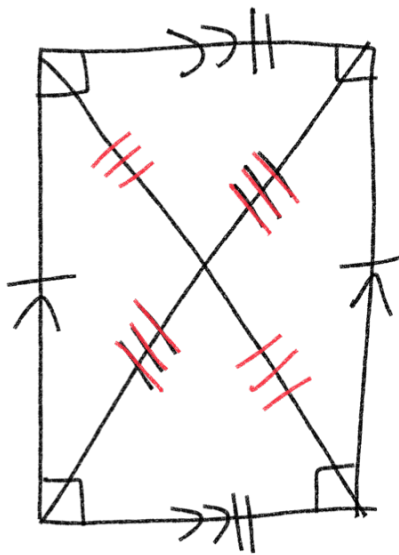
$$2x + 8 + 3x + 12 + 50 = 180^\circ$$

$$5x + 70 = 180^\circ$$

$$\begin{array}{r} 5x + 70 = 180^\circ \\ -70 \quad -70 \\ \hline 5x = 110 \\ \frac{5x}{5} = \frac{110}{5} \end{array}$$

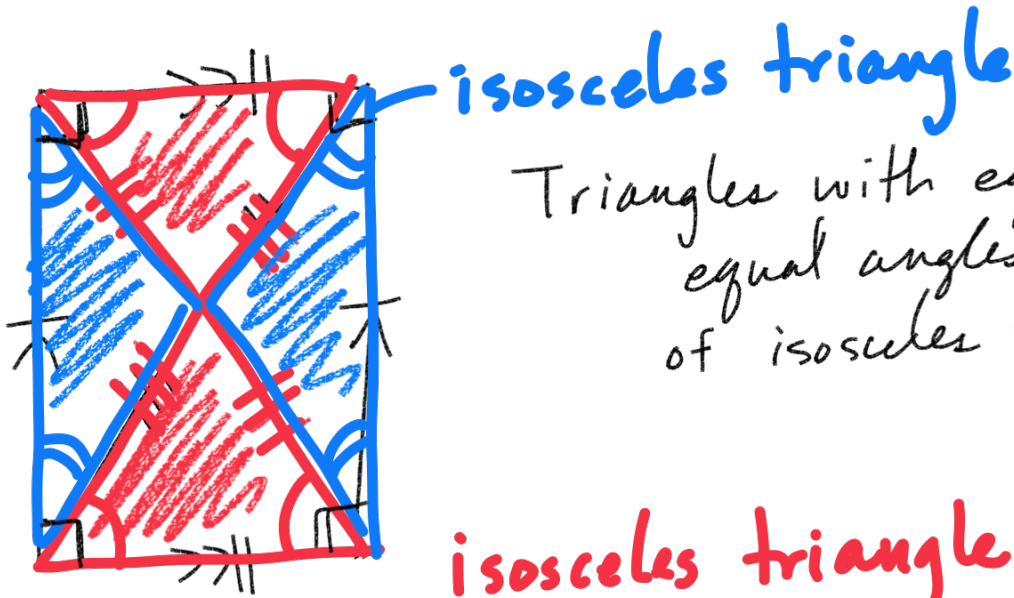
$x = 22$

Rectangle (is a parallelogram)  
All angles equal



Parallelogram: diagonals bisect  
Rectangle: all diagonals are congruent

# Rectangle

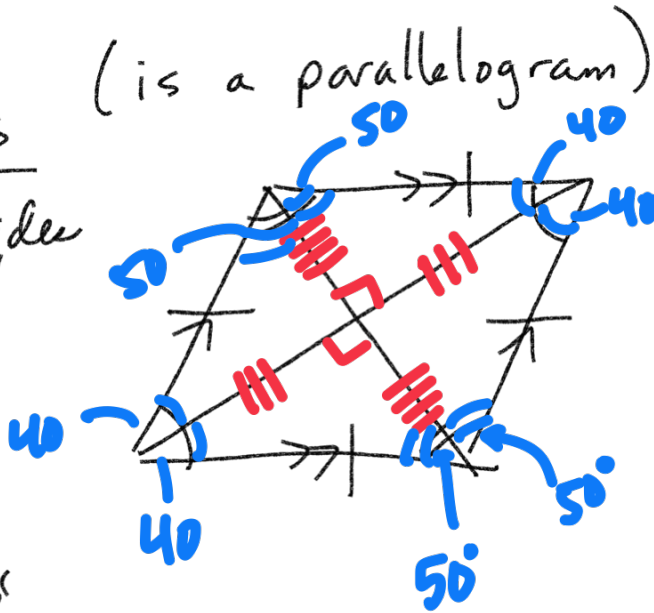


Triangles with equal legs - equal angles in two sets of isosceles triangles.

isosceles triangle

# Rhombus (is a parallelogram)

all 4 sides equal

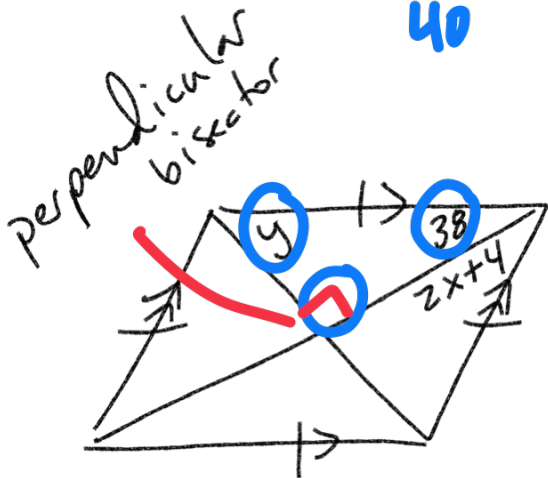


Diagonals:

perpendicular bisectors

also....

Angle bisectors



## Angle Bisectors

$$2x + 4 = 38$$

$$\begin{array}{r} -4 \quad -4 \\ \hline \end{array}$$

$$2x = 34$$

$$\begin{array}{r} \frac{2x}{2} = \frac{34}{2} \\ \hline \end{array}$$

$$\boxed{x = 17}$$

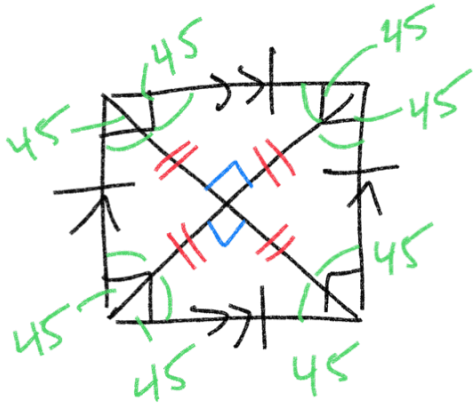
$$y + 38 + 90 = 180$$

$$y + 128 = 180$$

$$\begin{array}{r} -128 \quad -128 \\ \hline \end{array}$$

$$\boxed{y = 52}$$

Square



Parallelogram

diagonals are bisectors

Rectangle

diagonals are congruent

Rhombus

diagonals are:

perpendicular bisectors

angle bisectors