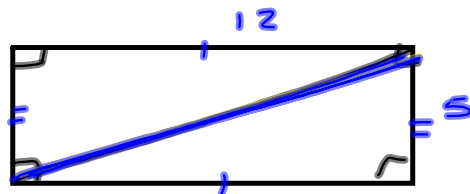
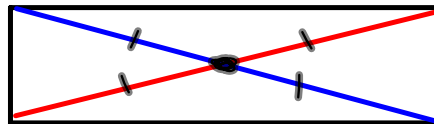
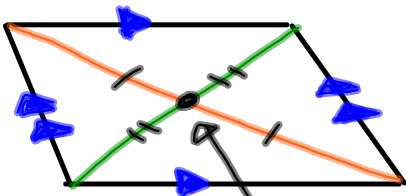


$$\begin{aligned} \text{leg}^2 + \text{leg}^2 &= \text{hyp}^2 \\ 5^2 + 12^2 &= \text{hyp}^2 \\ 25 + 144 &= \text{hyp}^2 \\ 169 &= \text{hyp}^2 \\ \sqrt{169} &= \text{hyp} \\ 13 &= \text{hyp} \end{aligned}$$



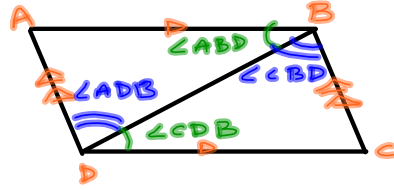
$$\begin{aligned} \text{leg}^2 + \text{leg}^2 &= \text{hyp}^2 \\ 5^2 + 12^2 &= \text{hyp}^2 \\ 13 &= \text{hyp} \end{aligned}$$





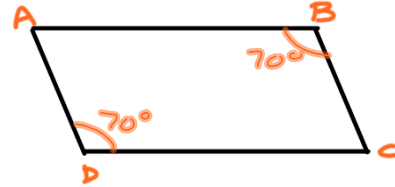
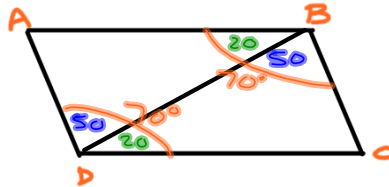
parallelogram
parallel - opp. sides are parallel

Bisects each diagonal
↑
cuts in half.

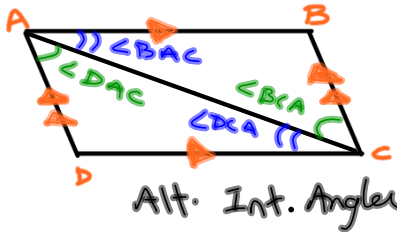


parallelogram ABCD

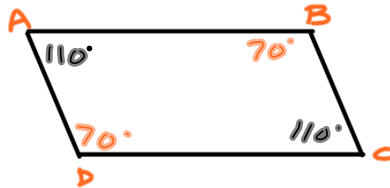
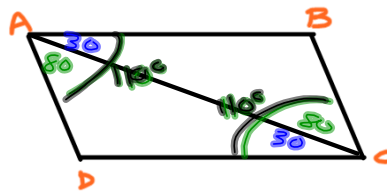
where are alt. int. angles?



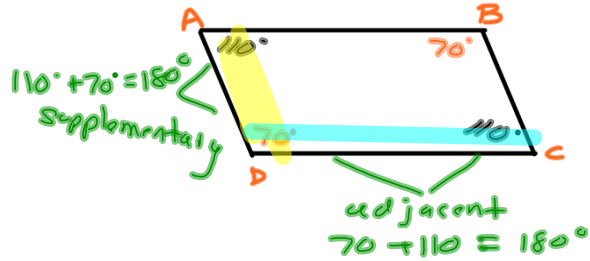
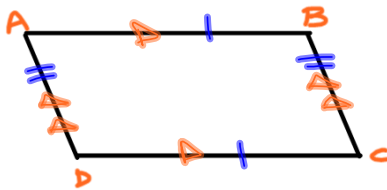
$\angle D \cong \angle B$
opp. angles are \cong



Alt. Int. Angles

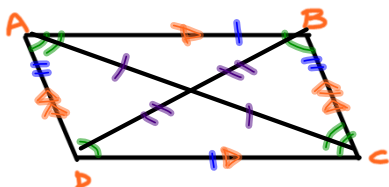


- opp angles are \cong
- adjacent angles are supplementary



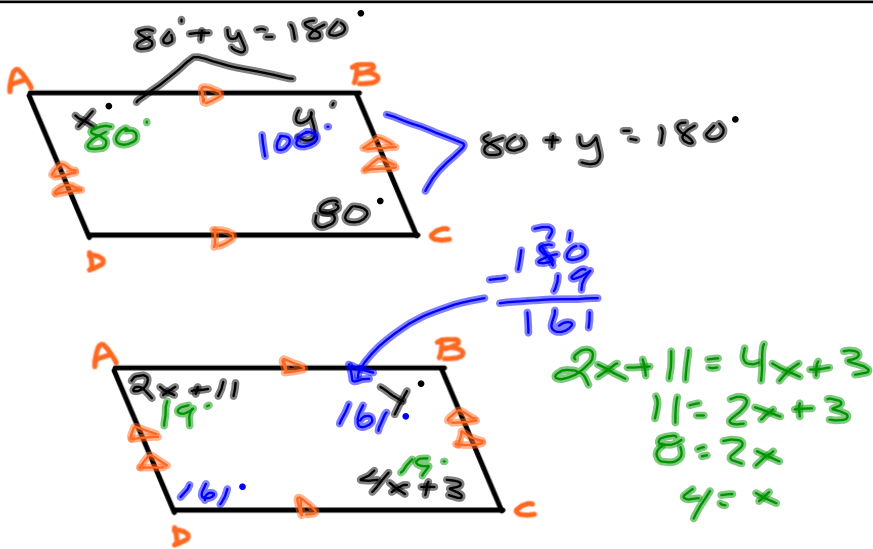
- opp. sides are parallel
- opp. sides are congruent

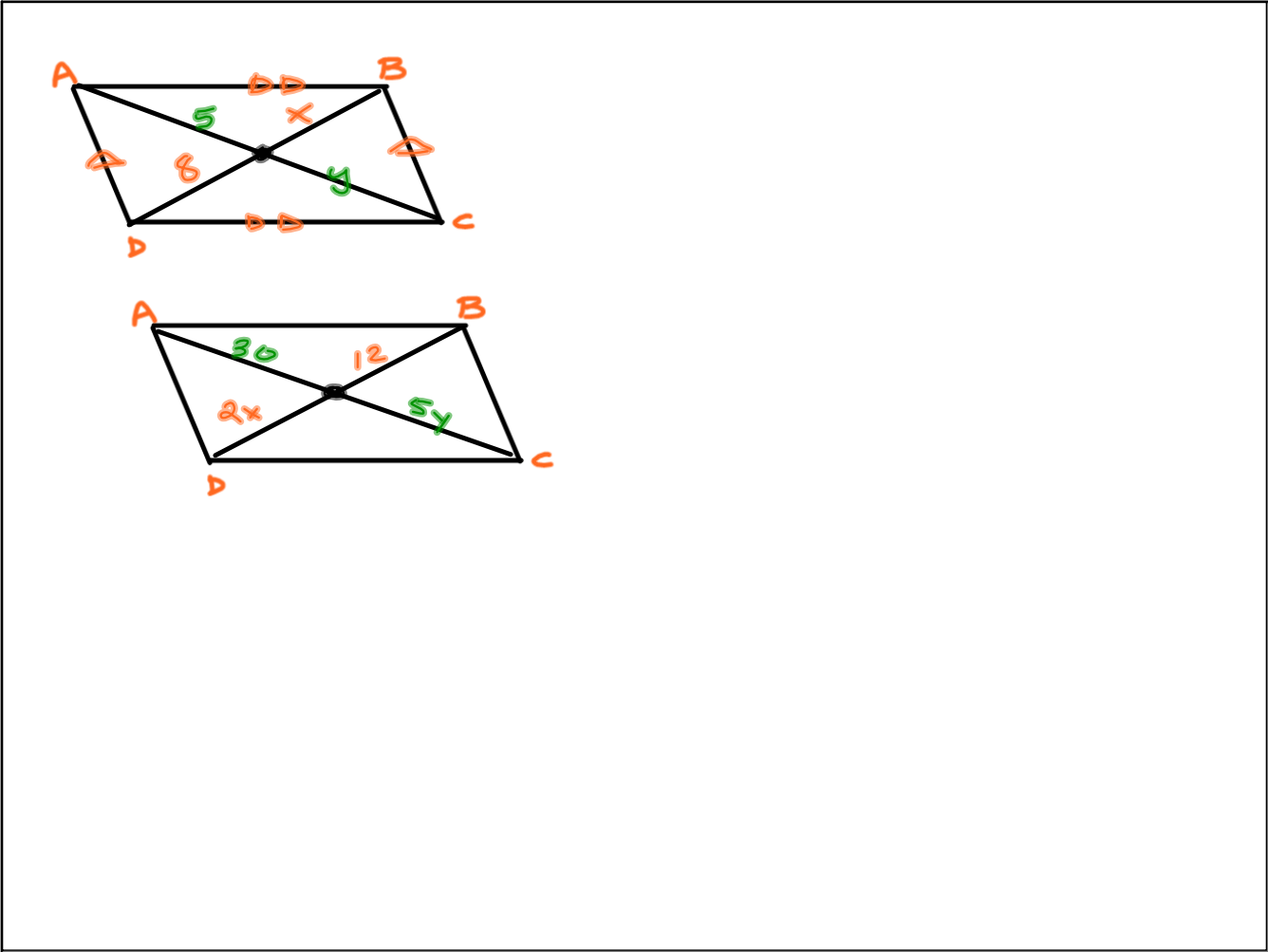
ALL Properties of parallelograms



- all interior angles sum to 360°

- opposite sides are parallel
- opposite sides are \cong
- opposite angles are \cong
- diagonals bisect each other
- adjacent angles are supplementary (add to 180°)

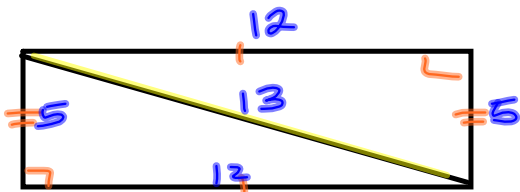




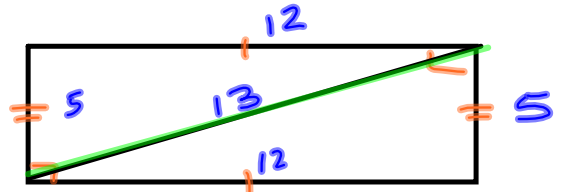


what is marked?
you know 4 sides.

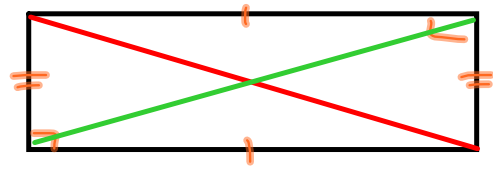
⇒ Not Assume!



$$\begin{aligned} \text{leg}^2 + \text{leg}^2 &= \text{hyp}^2 \\ 5^2 + 12^2 &= \text{hyp}^2 \\ 25 + 144 &= \text{hyp}^2 \\ 169 &= \text{hyp}^2 \\ \sqrt{169} &= \text{hyp} \\ 13 &= \text{hyp} \end{aligned}$$



$$\begin{aligned} \text{leg}^2 + \text{leg}^2 &= \text{hyp}^2 \\ 5^2 + 12^2 &= \text{hyp}^2 \\ 169 &= \text{hyp}^2 \\ \sqrt{169} &= \text{hyp} \\ 13 &= \text{hyp} \end{aligned}$$

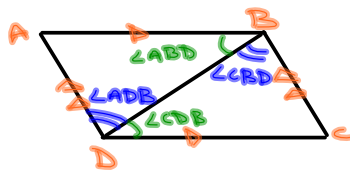
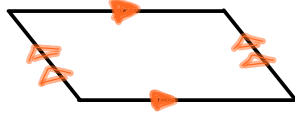


Rectangle

- diagonals are congruent
- 4 Rt \angle s
- opp. sides \cong
- opp. sides are parallel

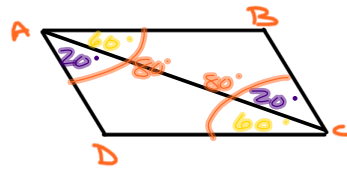
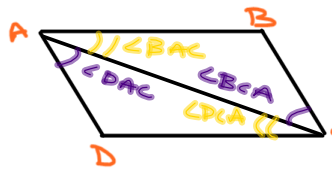
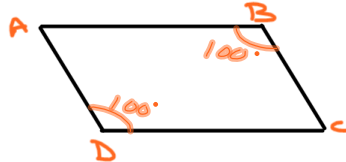
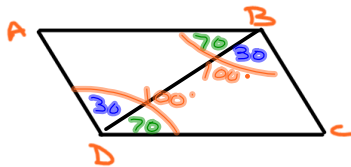
Parallelograms

parallel
sides

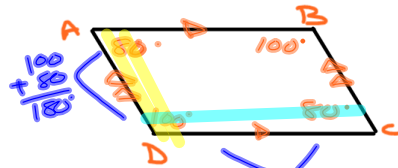


parallelogram ABCD
▭ ABCD

use alt. int \angle s.

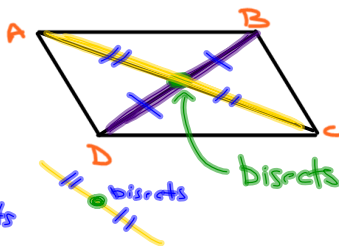


- all int. \angle s sum to 360°
- opposite angles are congruent
- adjacent angles are supplementary (add to 180°)



$100 + 80 = 180^\circ$
Supplementary \angle s

- diagonal bisects each other

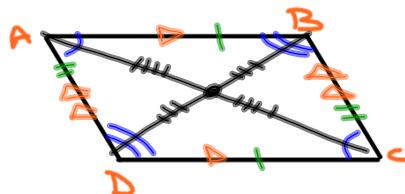


diagonals of parallelogram.

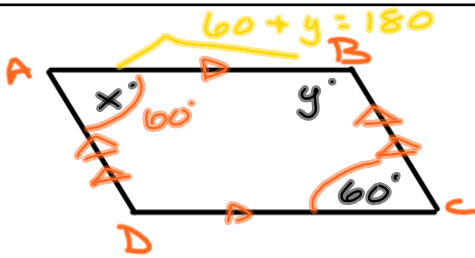


bisects each diagonal.

- opposite sides are parallel
- opposite sides are congruent
- opposite angles are congruent
- diagonal bisect each other

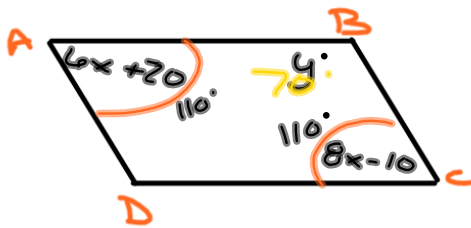


- adjacent angles are supplementary.



$$x = 60$$

$$y = 120$$



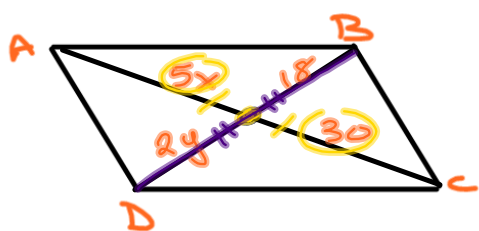
$$6x + 20 = 8x - 10$$

$$20 = 2x - 10$$

$$30 = 2x$$

$$15 = x$$

$$8(15) - 10 = 110$$



$$\begin{aligned} 5x &= 30 \\ x &= 6 \end{aligned}$$

$$\begin{aligned} 2y &= 18 \\ y &= 9 \end{aligned}$$

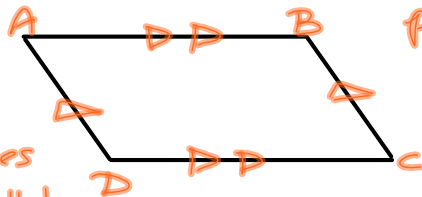
$leg^2 + leg^2 = hyp^2$
 $5^2 + 12^2 = hyp^2$
 $25 + 144 = hyp^2$
 $169 = hyp^2$
 $\sqrt{169} = hyp$
 $13 = hyp$

$leg^2 + leg^2 = hyp^2$
 $5^2 + 12^2 = hyp^2$
 $25 + 144 = hyp^2$
 $13 = hyp$

Rectangle
 bisects

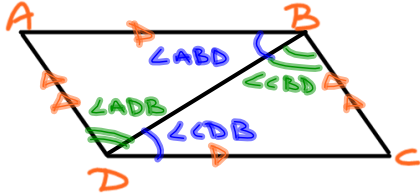
Parallelogram

parallel

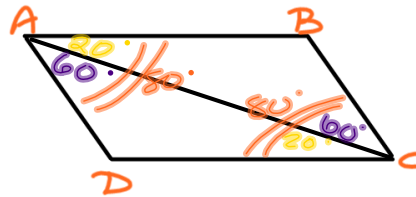
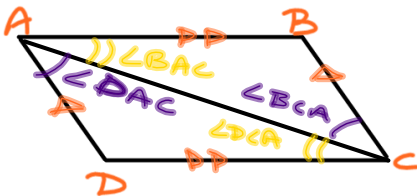
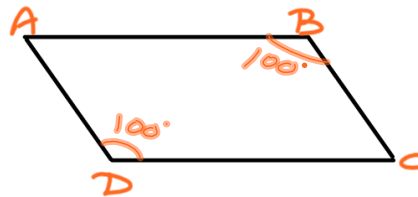
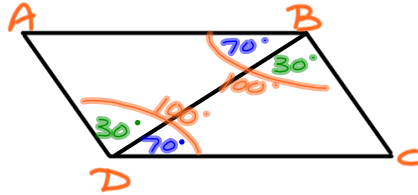


parallelogram ABCD
 \square ABCD

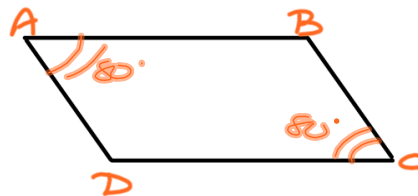
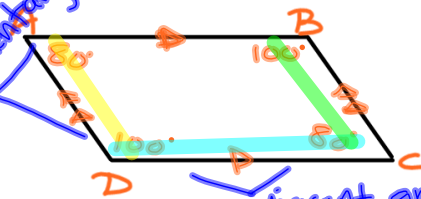
• opp. sides are parallel



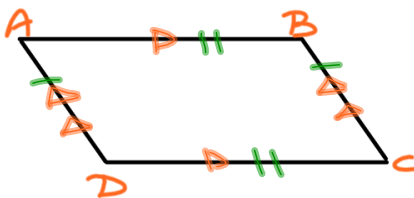
Alt. Int Ls
 Alt. Ext Ls



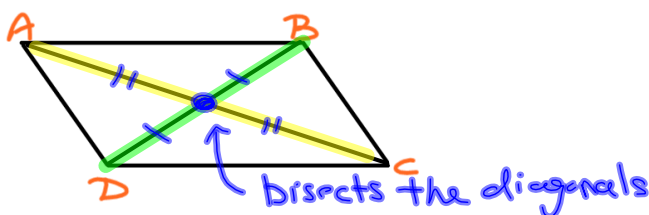
Supplementary

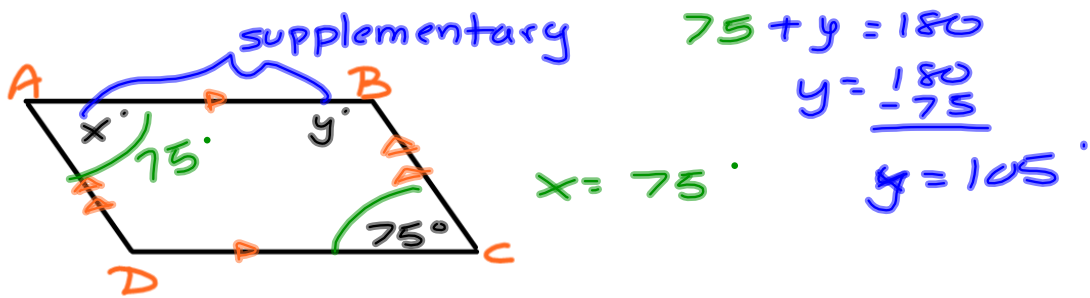


- opposite angles are congruent
- adjacent angles are supplementary (add to 180)



- opposite sides are parallel
- opposite sides are congruent



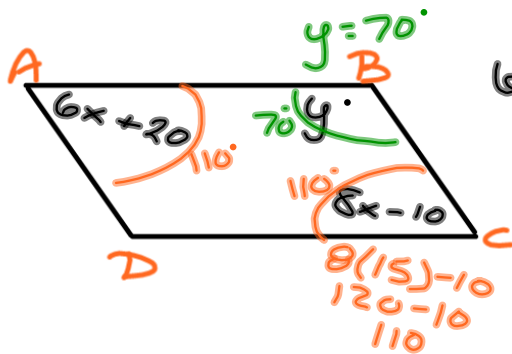


$$75 + y = 180$$

$$y = \frac{180}{-75}$$

$$x = 75^\circ$$

$$y = 105^\circ$$

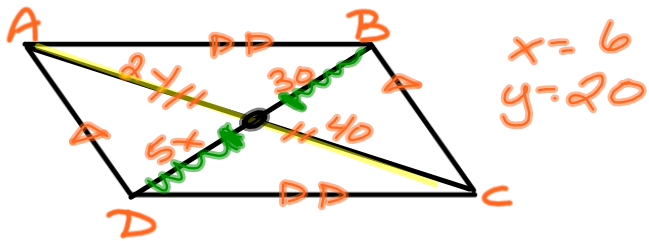


$$6x + 20 = 8x - 10$$

$$20 = 2x - 10$$

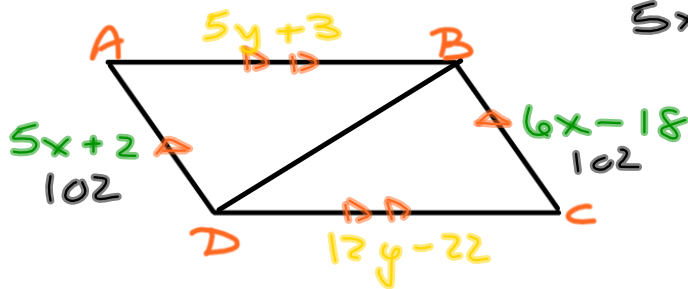
$$30 = 2x$$

$$15 = x$$



$$x = 6$$

$$y = 20$$



$$5x + 2 = 6x - 18$$

$$2 = x - 18$$

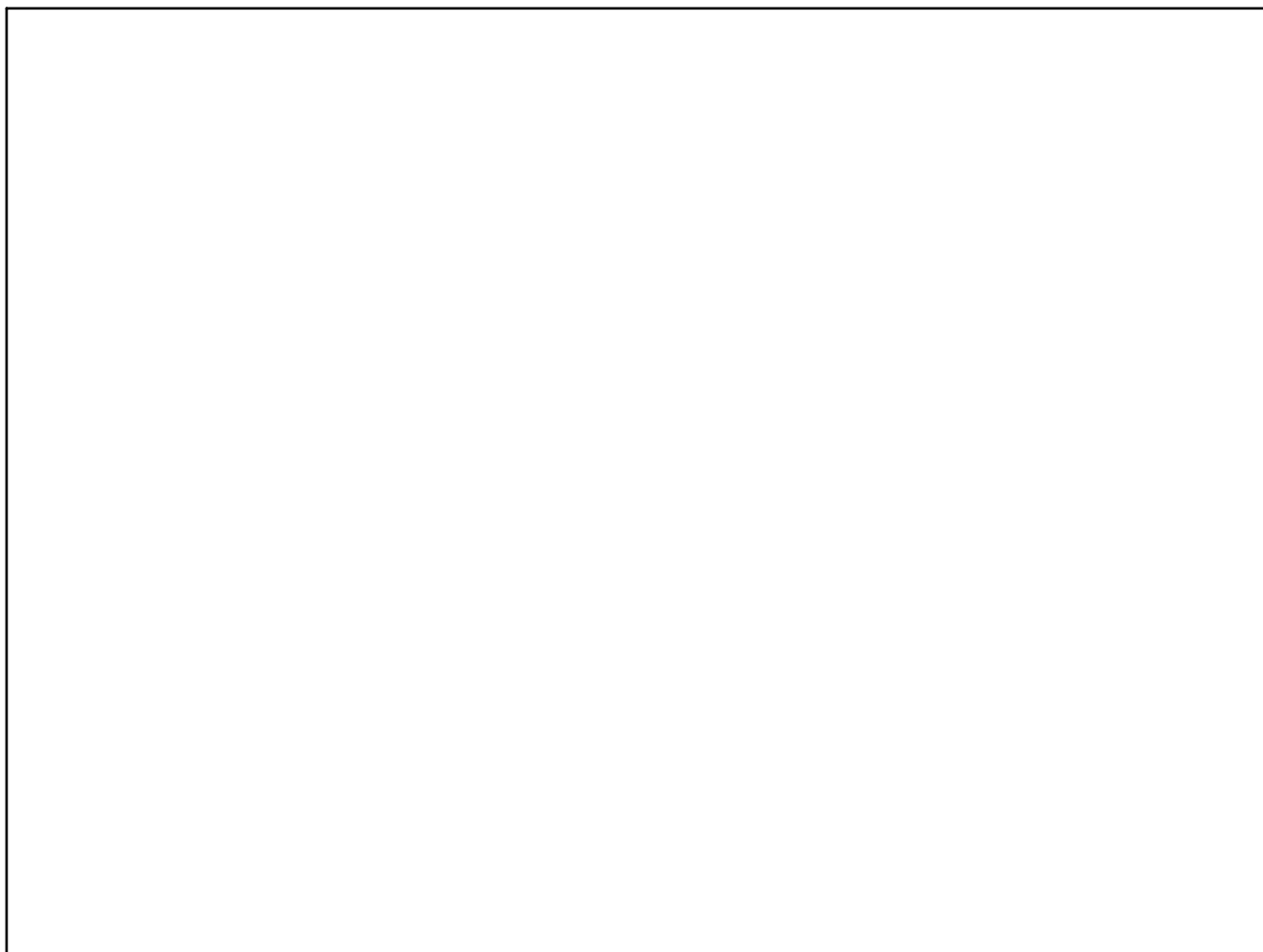
$$20 = x$$

$$5y + 3 = 12y - 22$$

$$3 = 7y - 22$$

$$25 = 7y$$

$$25/7 = y$$



Geometry

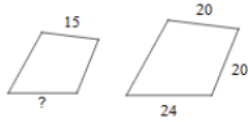
Name _____ ID: 1

Using Congruent Triangles

Period _____ 10-5-2015 ____

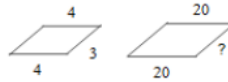
This is the same when you learned Similar Triangles.
The polygons in each pair are similar. Find the missing side length.

1)



18

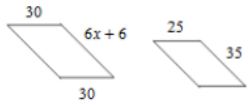
2)



15

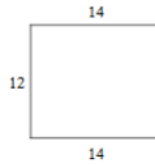
Set-up the problems just like it would be similar triangles.
Solve for x . The polygons in each pair are similar.

3)



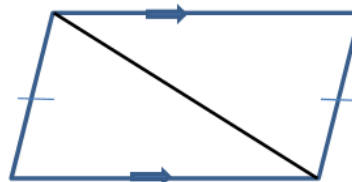
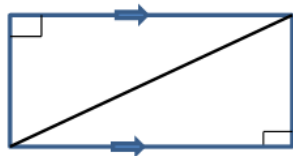
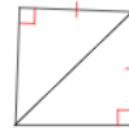
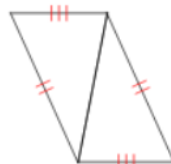
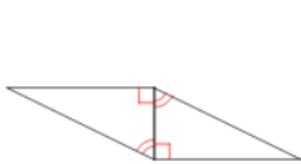
6

4)

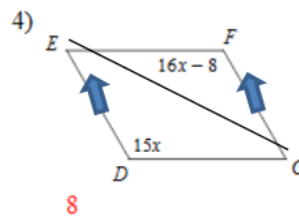
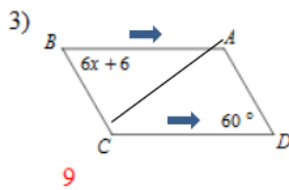
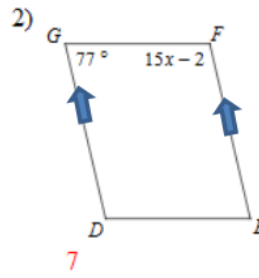
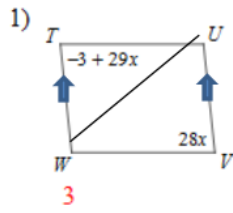


6

Use the Alternate Interior, Alternate Exterior, and Corresponding Angles to show that the two triangles are congruent. Then show all the congruent parts of each triangle (CPCTC).

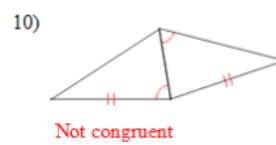
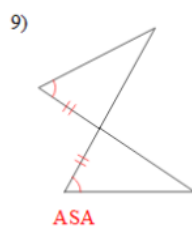
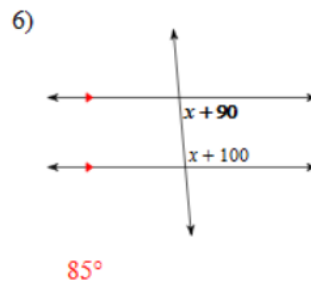
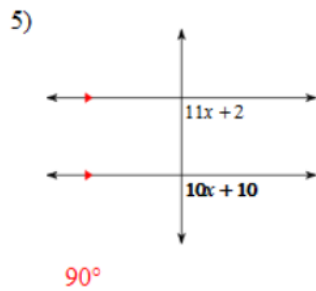


Some for all. Use the properties of Δ , Δ , Δ , Δ , or corresponding angles to show the triangles are congruent. Then use CPCTC to find the congruent angles. Now solve for the x .



Previous Concepts Review

Find the measure of the angle indicated in bold.



Find the value of x .

