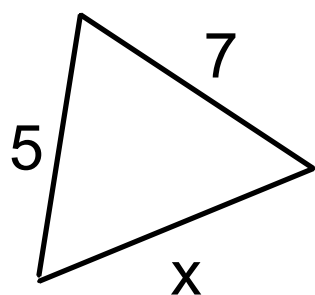Do-now: Which set of numbers represents the lengths of the sides of a triangle? Why?

1) {5, 18, 13} $5 + 13 > 18?$ No

2) {4, 12, 7} $4 + 7 > 12?$ No!

3) {13, 9, 6} $6 + 9 > 13?$ Yes!

What are all of the possible values for x?

$5+7 > x$

$12 > x$

5

7

x

Note: Figure not drawn to scale.

$2 < x < 12$

$5 + x > 7$
$-5 \quad -5$

$x > 2$

The three angles in a triangle measure x, $x^2 + 10$, and $60 - 2x$. What is the value of x?

$$x + x^2 + 10 + 60 - 2x = 180$$

$$x^2 - x + 70 = 180$$

$$-11 \times 10 = -110 \qquad\qquad -180 \qquad -180$$

$$-11 + 10 = -1 \qquad x^2 - x - 110 = 0 \qquad\qquad 5 \times 0 = 0$$

$$(x + 10)(x - 11) = 0$$

$$x + 10 = 0 \quad\bigg|\quad x - 11 = 0$$

$$x = 10 \quad\bigg|\quad x = 11$$

1) Go to the class web site: geometry2014.weebly.com

2) Under the "Unit 6 - Triangles" tab, click on the link "Side Angle Relationships" found under "Day 4".

3) Manipulate the triangle to complete the following statements (record in your notebook):

In a triangle, the **largest angle** is always opposite the ___*longest side*___ .

In a triangle, the **smallest angle** is always opposite the ___*shortest side*___ .

4) Complete the following exercises:

Classwork: page 293 #s 7, 12, 16, 17, 22, 23

7) $\angle$A, $\angle$B, $\angle$C

12) $\overline{TU}$, $\overline{UV}$, $\overline{TV}$

16) No; $2 + 3 \not> 6$

17) Yes; $11 + 12 > 15$
$12 + 15 > 11$
$11 + 15 > 12$

22) $4 < s < 20$

23) $11 < s < 21$