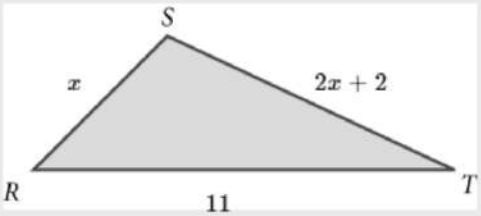
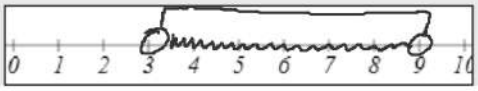
The triangle inequality states that the sum of any two sides of a triangle must be greater than the third side.



Use the three inequalities, which must be true based on the sides of the triangle, to write a compound inequality. Then graph the results.

3 < x < 9



$x+2x+2>11$

$3x>9$

$x>3$

$x+11>2x+2$

$-x \quad -x$

$11>x+2$

$9>x \Rightarrow x<9$

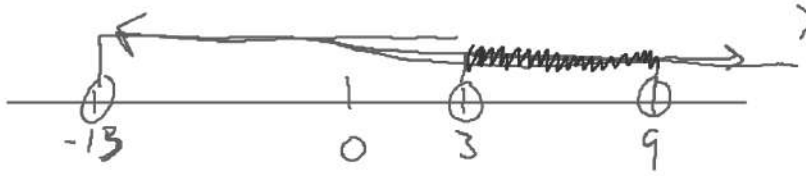
$2x+2+11>x$

$-x \quad -x$

$x+13>0$

$x>-13$

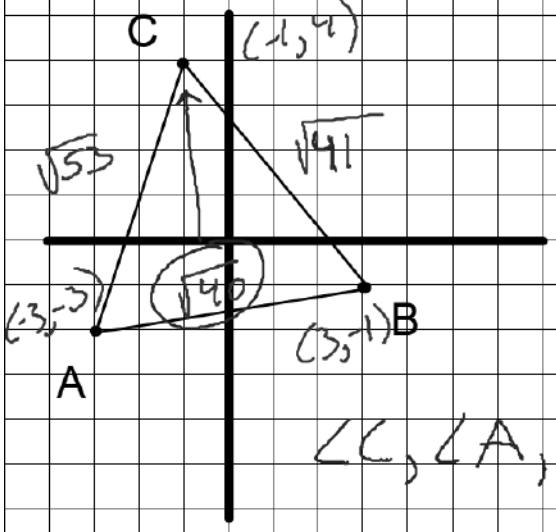
$3<x<9$



List the angles of ΔABC from smallest to largest.

A (-3, -3), B(3, -1), and C (-1, 4)

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



$\angle C, \angle A, \angle B$

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

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

$= \sqrt{(-6)^2 + (-2)^2}$

$= \sqrt{36+4}$

$= \sqrt{40}$

$BC = \sqrt{(3-(-1))^2 + (-1-4)^2}$

$\sqrt{(4)^2 + (-5)^2}$

$\sqrt{16+25}$

$\sqrt{41}$

$AC = \sqrt{(-3-(-1))^2 + (-3-4)^2}$

$\sqrt{(-2)^2 + (-7)^2}$

$\sqrt{4+49}$

$\sqrt{53}$