Homework 7 - Math 105

Name: _____

Do not use a calculator unless it says **(Calc)** *next to the problem.*

1. **(Calc)** Graph the lines $y = 2x - 4$, $y = x + 7$, and $y = 3x - 15$ and use the graphs to determine the values of x where

$$2x - 4 < x + 7 < 3x - 15$$

2. Find all values of x such that $|3 - 2x| = 7$.

3. Solve the inequality $|2x - 3| < 4$.

4. When is $x^2 - 3x < -2$?

5. Solve $\left| \dfrac{1}{x} - 3 \right| > 2$.

6. Write the following sentence as an inequality using absolute values: *the distance from x to 5 is less than 2.*

7. **(Calc)** Solve $|2x+5| = |3x|$. Graph the two functions $y = |2x+5|$ and $y = |3x|$ to check your solution.

8. **(Calc)** Solve $\dfrac{(x-2)(x-3)}{x+1} \geq 0$ and graph the function $y = \dfrac{(x-2)(x-3)}{x+1}$ to check your solution.