Name _____

Instructions: complete the following problems and write final solutions on homework paper and submit. Attach pages with work. All steps must be shown to receive credit.

1. Solve the following equation and write the solution in a) set notation, b) graphed on a number line, and c) in interval notation.

$$\frac{3-4x}{6} - \frac{1-2x}{12} \le -2$$

a.

b.

c.

2. Solve the following equation and write the solution in a) set notation, b) graphed on a number line, and c) in interval notation.

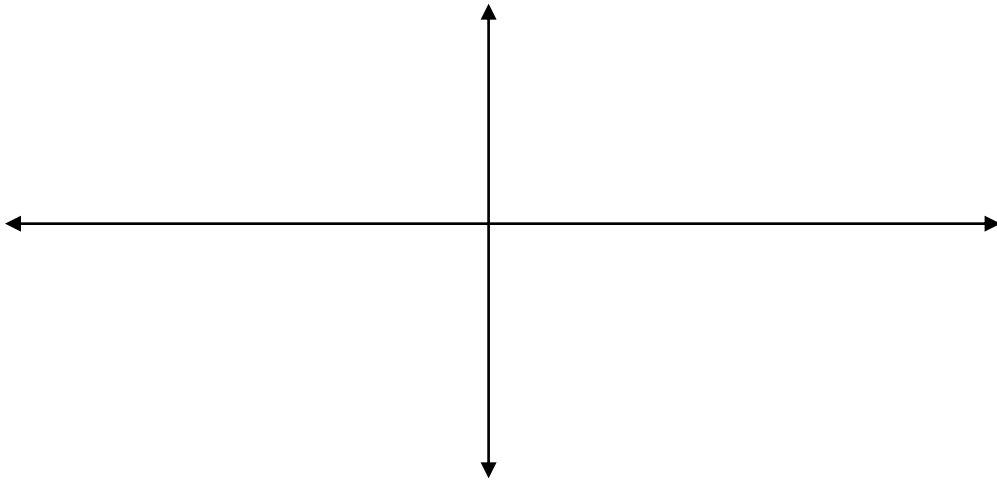$$1 + 2x < 3(2 + x) < 1 + 4x$$

a.

b.

c.

3. Solve the following equation and write the solution in set notation.

$$3 - 2\left|\frac{1}{3}x - 5\right| = 1$$

4. Solve the following equation graphically. Sketch your graph on the axes below and label it clearly, including all functions, and any intersections. Write your final solution in interval notation.

$$|x+2|+1 > -5$$

5. Use the graph below to sketch the solution set of the system of inequalities below. Clearly indicate the solution set by shading it differently than solution regions of individual inequalities. Clearly label each line.

$$\begin{cases} 2x - y > 3 \\ x + y \le 0 \\ x \ge -4 \end{cases}$$