MATH 108 Quiz #7 Fall 2017   Name _____

Directions: Answer each question as completely as possible. Show all work for credit. Good luck.

1. Solve each of the following inequalities for x. Express your answers using interval notation.

a) $(x + 2)^2(x - 1)(x - 4) \leq 0$

b) $\frac{3x-2}{x+1} \leq 4$

c) $4|x + 2| - 3 > 13$

2. Solve the following equations for x.

a) $|2x^2 - x - 3| = -x + 5$

b) $|2x - 1| = |4x + 9|$

3. Solve each of the following systems of equations:

a) $\begin{cases} y = -x^2 + 6 \\ y = 3x - 4 \end{cases}$

b) $\begin{cases} 2x - 3y = 9 \\ -6x + 9y = 12 \end{cases}$

4. Solve the following system of inequalities by graphing and shading in the appropriate solution set. Algebraically find all vertices of the system and mark them on your graph.

$$\begin{cases} x^2 - y \leq 0 \\ 2x^2 + y < 12 \end{cases}$$