

Name \_\_\_\_\_  
Date \_\_\_\_\_

Advanced Algebra  
Unit 6: Advanced Systems of Equations  
Assignment #5

Graph the following problems, identify the corner points, and shade in the feasible region.

$$\begin{cases} y \geq 0 \\ x \geq 0 \\ 8y + 7x \leq 56 \end{cases}$$

$$\begin{cases} y \leq 5 \\ x \leq 7 \\ y \geq x \end{cases}$$

$$\begin{cases} x + y \leq 9 \\ y \leq 4 \\ y \geq 1 \\ y - x \leq 4 \end{cases}$$

$$\begin{cases} y \leq x \\ y + 2x \leq 10 \\ y \geq 0 \end{cases}$$

Finding where the line intersects the curve.

For the following problems, do the following:

- Make a graph of both functions on paper, guess your intersections
- Use algebra to solve where  $f(x)=g(x)$ . This is setting a quadratic equal to a linear. So after you do this, get everything to 1 side and use the quadratic formula.
- Check your work by using the intersect feature on your calculator.

$$1) \begin{cases} f(x) = -x^2 + 6x - 5 \\ g(x) = -x + 5 \end{cases}$$

$$2) \begin{cases} f(x) = -x^2 + 5 \\ g(x) = -x + 1 \end{cases}$$

$$3) \begin{cases} f(x) = x^2 + 4x + 2 \\ g(x) = \frac{-1}{2}x + 2 \end{cases}$$

$$4) \begin{cases} f(x) = x^2 - 12x + 36 \\ g(x) = \frac{-1}{3}x + 6 \end{cases}$$

$$5) \begin{cases} f(x) = -x^2 + 8x - 10 \\ g(x) = -x + 8 \end{cases}$$

$$6) \begin{cases} f(x) = x^2 - 8x + 12 \\ g(x) = 3x - 4 \end{cases}$$