Secondary Math 2 **9.2 Homework** **Name: _____ Period: _____**

Solving Systems of Non-Linear Equations Algebraically

Solve the system of equations algebraically.

1. $\begin{cases} y = 5x^2 - 16 \\ y = 4 \end{cases}$

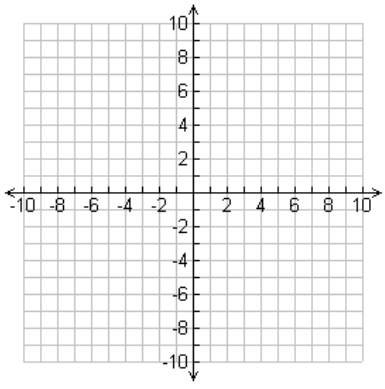
2. $\begin{cases} x = -3 \\ x^2 + y^2 = 34 \end{cases}$

Review Problems:

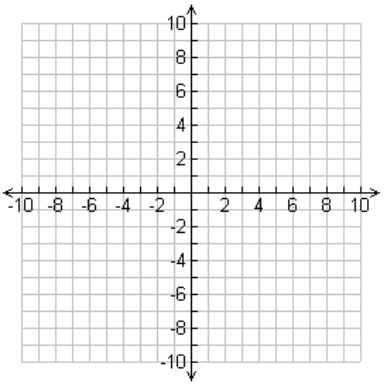
3. Solve the system algebraically:
$\begin{cases} 3x - 2y = -2 \\ 2x + y = 8 \end{cases}$

4. Solve the quadratic equation:
$4x^2 - 81 = 0$

5. Graph the following equation:
$y = -x^2 + 2x - 3$



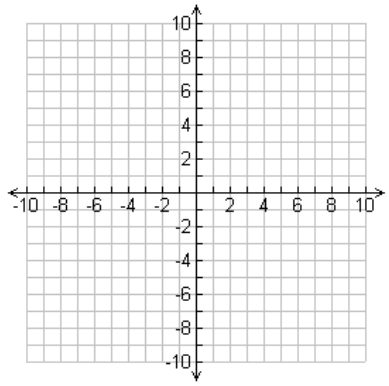
6. Graph the following equation:
$y = -(x - 1)^2 + 6$



Extended Understanding: Solve the following system of equation, first by graphing and estimating the solution (you can use a graphing calculator if you have one). Then solve the system of equations algebraically (you will need to use the quadratic formula).

$$\begin{cases} x^2 + y^2 = 16 \\ y = x + 1 \end{cases}$$

7. **Graphically:**



Your Estimation:

(,)

(,)

8. **Algebraically: (Hint:** $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$)

How close was your estimate?