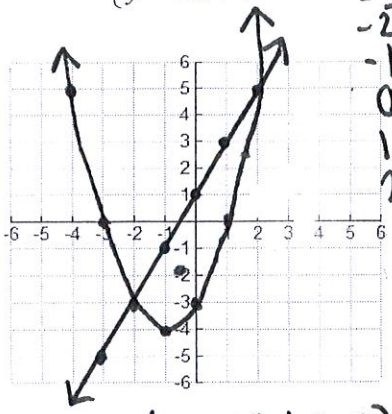
Math 2 – Linear and Quadratic Systems of Equations WS Name: _____

I. Solve each linear and quadratic system BY GRAPHING. State the solution(s) on the line. Must be ACCURATE!

1.) $\begin{cases} y = x^2 + 2x - 3 \\ y = 2x + 1 \end{cases}$

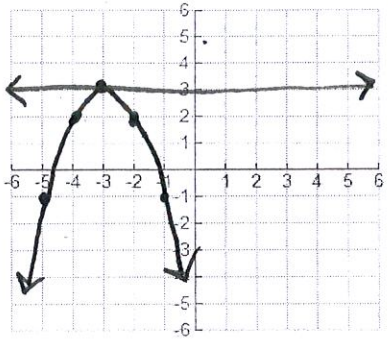
x	y
-3	0
-2	-3
-1	-4
0	-3
1	0
2	5



Solution(s): (-2,-3) (2,5)

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

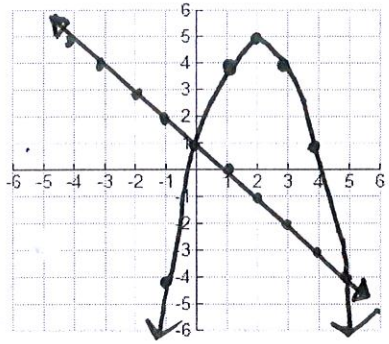
x	y
-5	-1
-4	2
-3	3
-2	2
-1	-1



Solution(s): (-3,3)

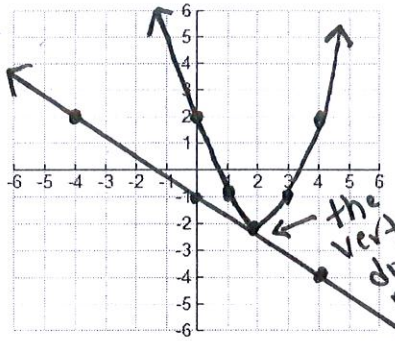
3.) $\begin{cases} y = -(x-2)^2 + 5 \\ y = -x + 1 \end{cases}$

x	y
0	2
1	-1
2	-2
3	-1
4	2



Solution(s): (0,1) (5,-4)

4.) $\begin{cases} y = x^2 - 4x + 2 \\ y = -\frac{3}{4}x - 1 \end{cases}$



Solution(s): None

II. Solve each linear and quadratic system BY SUBSTITUTION. State the solution(s) on the line. Must SHOW WORK!

5.) $\begin{cases} y = x^2 + 5x - 2 \\ y = 3x - 2 \end{cases}$ → Solution(s): (0,-2) (-2,-8)

$x^2 + 5x - 2 = 3x - 2$
$-3x \quad +2 \quad -3x \quad +2$
$x^2 + 2x = 0$
$x(x+2) = 0$
$x = 0$
$x + 2 = 0$
$-2 \quad -2$
$x = -2$

6.) $\begin{cases} y = -x^2 - 3x + 2 \\ y = x + 6 \end{cases}$ → Solution(s): (-2,4)

$-x^2 - 3x + 2 = x + 6$
$+x^2 \quad +x^2$
$-3x + 2 = x^2 + x + 6$
$+3x - 2 \quad +3x - 2$
$x^2 + 4x + 4 = 0$
$(x+2)(x+2) = 0$
$x = -2$

7.) $\begin{cases} y = -2x^2 - 4x - 1 \\ y = 2x + 4 \end{cases}$ → Solution(s): none

$-2x^2 - 4x - 1 = 2x + 4$
$+2x^2 \quad +2x^2$
$-4x - 1 = 2x^2 + 2x + 4$
$+4x + 1 \quad +4x + 1$
$2x^2 + 6x + 5 = 0$
use quad formula
no solution

8.) $\begin{cases} x + y = 5 \\ y + 1 = 3x^2 + 2x \end{cases}$ → Solution(s): (-2,7) (1,4)

$y = -x + 5 \quad y = 3x^2 + 2x - 1$
$3x^2 + 2x - 1 = -x + 5$
$+x \quad -5 \quad +x \quad -5$
$3x^2 + 3x - 6 = 0$
$3(x^2 + x - 2) = 0$
$3(x+2)(x-1) = 0$
$x + 2 = 0$
$x = -2$
$x - 1 = 0$
$x = 1$

9.) $\begin{cases} x^2 + y - 8 = 0 \\ x + y - 2 = 0 \end{cases}$ → Solution(s): (3,-1) (-2,4)

$y = -x^2 + 8$
$y = -x + 2$
$-x^2 + 8 = -x + 2$
$+x^2 \quad -0 \quad +x^2 \quad -0$
$x^2 - x - 6 = 0$
$(x-3)(x+2) = 0$
$x - 3 = 0$
$x = 3$
$x + 2 = 0$
$x = -2$

10.) $\begin{cases} 5x + y = 2x^2 + 6 \\ y + 4x = 7x - 2 \end{cases}$ → Solution(s): (2,4)

$y = 2x^2 - 5x + 6$
$y = 3x - 2$
$2x^2 - 5x + 6 = 3x - 2$
$-3x \quad +2 \quad -3x \quad +2$
$2x^2 - 8x + 8$
$2(x^2 - 4x + 4) = 0$
$2(x-2)(x-2) = 0$