Name **Key**   Date _____ Pd _____

3.5 Solving Non-Linear Systems CYU

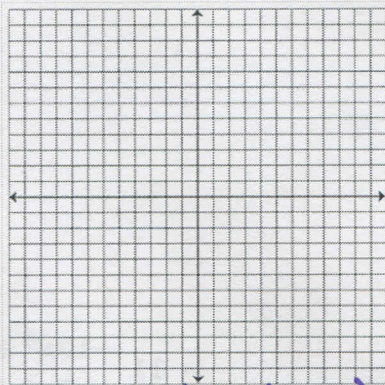| CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Solving Systems by graphing	1, 2	3	
Solving Systems by substitution	4, 5, 6		7
Solving Systems by elimination	8, 9	10	11

Solve the system by graphing. Remember you can check your answer by plugging them back into the original equations.

1.
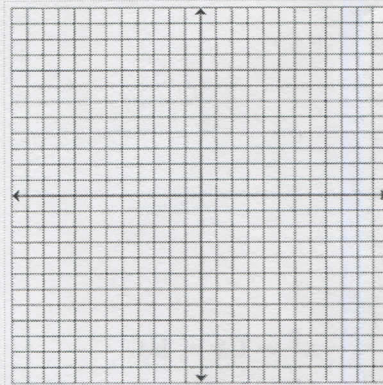$$y = \frac{1}{3}x + 2$$
$$y = -3x^2 - 5x - 4$$
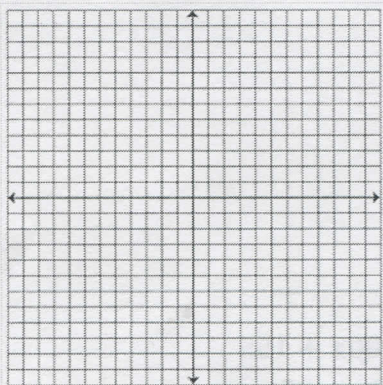
2.
$$y = -3x - 17$$
$$y = -3x^2 - 30x - 71$$

3.
$$y = \frac{1}{2}(x + 2)^2$$
$$y = -\frac{1}{2}x^2 + 2$$

no solution

(-3, -8) ½ (-6, 1)

(-2, 0) ½ (0, 2)

Solve the system by substitution. Remember you can check your answer by plugging them back into the original equations.

4.
$$y = x + 5$$
$$y = x^2 - x + 2$$

(3, 8) ½ (-1, 4)

5.
$$y = -8$$
$$x^2 + y^2 = 64$$

(0, -8)

6.
$$x = 3$$
$$-3x^2 + 4x - y = 8$$

$(3, -23)$

7.
$$y + 16x - 22 = 4x^2$$
$$4x^2 - 24x + 26 + y = 0$$

key

$(2, 6)$ & $(3, 10)$

Solve the system by substitution. Remember you can check your answer by plugging them back into the original equations.

8.
$$-x + 2 = -y$$
$$-3x^2 + 2x - 5 = y$$

no solution

9.
$$-3x^2 + y = -18x + 29$$
$$-3x^2 - y = 18x - 25$$

no solution

10.
$$y = -x^2 - 6x - 10$$
$$3x^2 + 18x + 22 = y$$

$\approx (-4.65, -4.71)$ &
$\approx (0.65, -15.29)$

11.
$$-10x^2 + y = -80x + 155$$
$$5x^2 + y = 40x - 85$$

$(4, -5)$ no solution