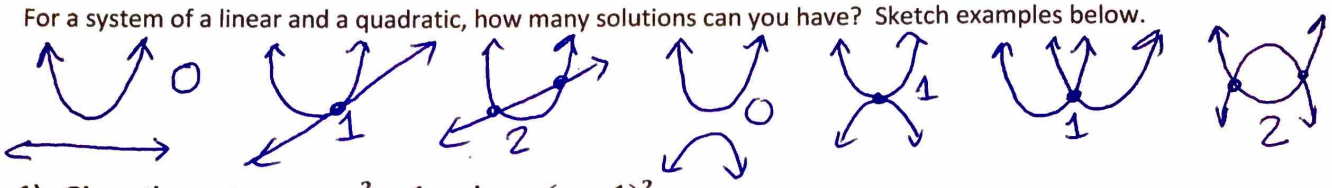
Day 07 Solving Non-Linear Systems Graphically Notes

Master Ec

A **system of equations** is when you have two or more equations. The **solution to the system** is the set of coordinates that works for both equations. For a system of 2 quadratics, how many solutions can you have? For a system of a linear and a quadratic, how many solutions can you have? Sketch examples below.



1) Given the system $y = x^2 - 1$ and $y = (x-1)^2$

a. Is (2, 3) a solution? NO

$3 = 2^2 - 1$ $\quad 3 = (2-1)^2$

$3 = 4 - 1$ ✓ $\quad 3 = (1)^2$ ×

b. Is (1, 0) a solution? YES

$0 = 1^2 - 1$ $\quad 0 = (1-1)^2$

$0 = 1 - 1$ ✓ $\quad 0 = (0)^2$ ✓

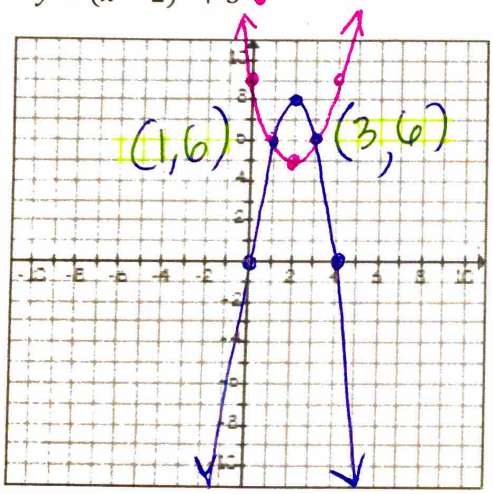
Solving a System by Graphing: For each problem, do the following.

A) Graph each function on the same coordinate plane (Hint: Think if you have the vertex or the zeros)

B) Look for the intersection points, these are the solutions (name the full coordinate, x and y value)

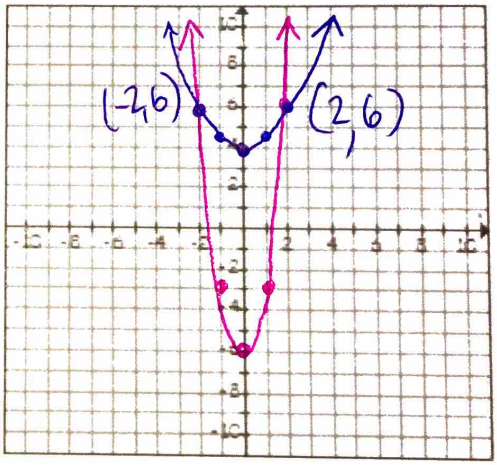
2) $y = -2(x-2)^2 + 8$

$y = (x-2)^2 + 5$



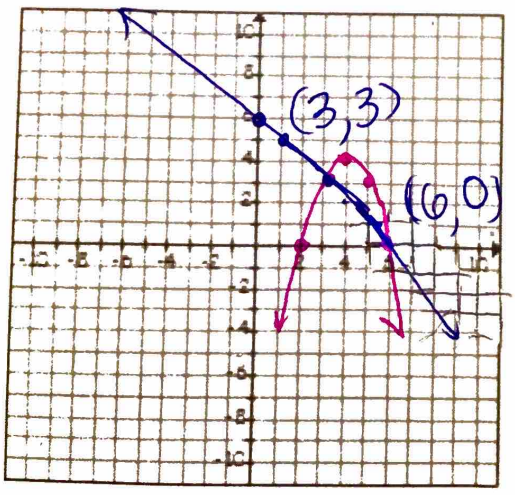
3) $y = \frac{1}{2}x^2 + 4$

$y = 3x^2 - 6$



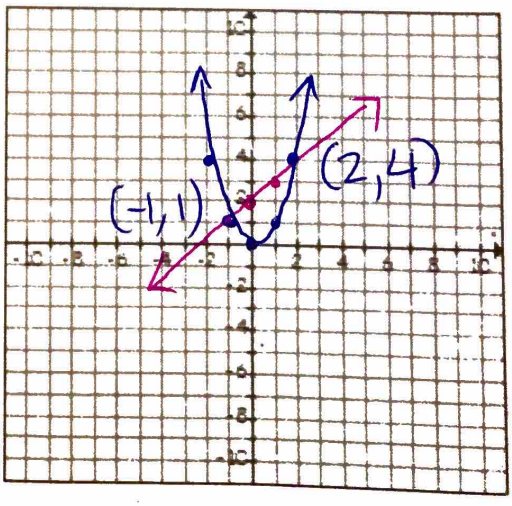
4) $x + y = 6$ $\quad y = -x + 6$

$y = -(x-4)^2 + 4$



5) $y = x^2$

$y = x + 2$



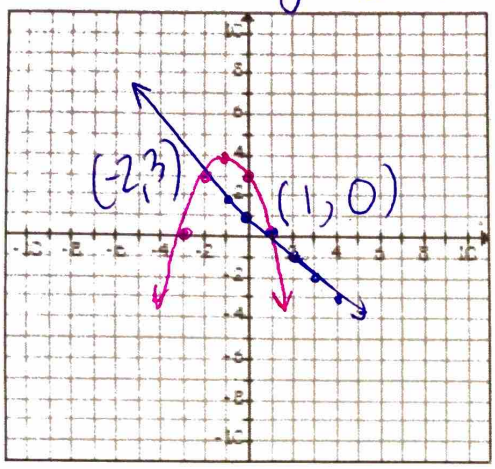
Day 07 Solving Non-Linear Systems Graphically Homework

Master Eq

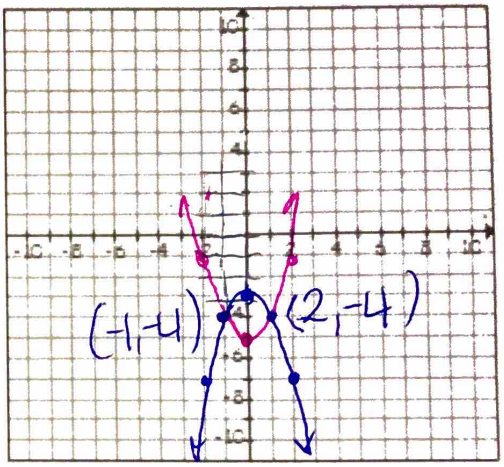
Solving a System by Graphing: For each problem, do the following.

A) Graph each function on the same coordinate plane (Hint: Think if you have the vertex or the zeros)
B) Look for the intersection points, these are the solutions (name the full coordinate, x and y value)

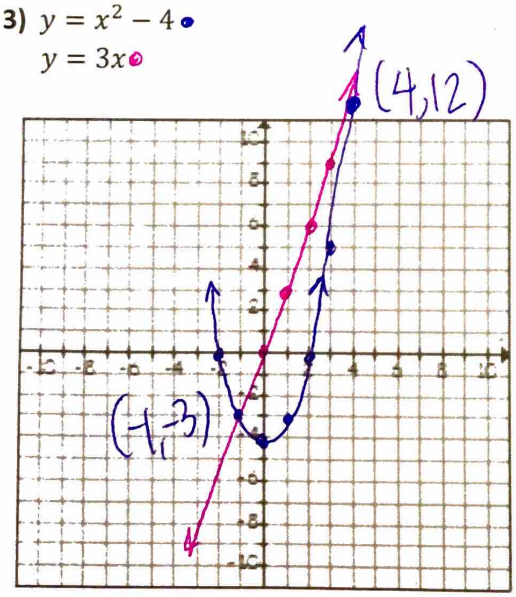
1) ~~$x+y=6$~~ 1 $x+y=1$ • $y=-x+1$
~~$y=-(x-4)^2+4$~~ $y=-(x+1)^2+4$ •



2) ~~$y=x^2$~~ $y=-x^2-3$ •
~~$y=x+2$~~ $y=x^2-5$



3) $y=x^2-4$ •
$y=3x$ •



4) $y=(x-1)^2+3$ •
$2x+y=5$ • $y=-2x+5$