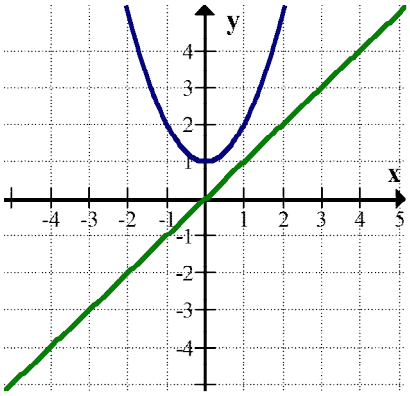
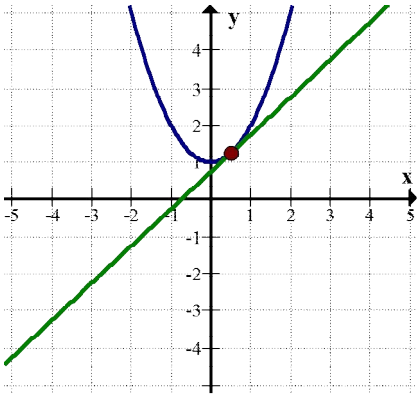
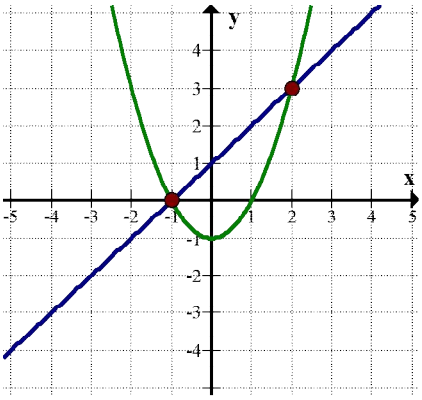
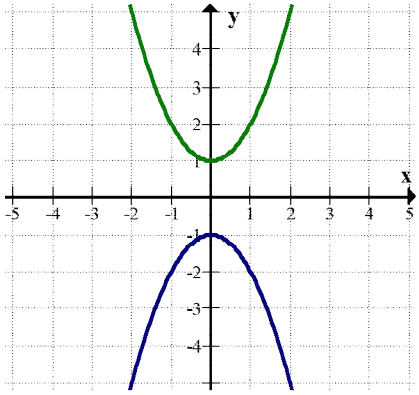
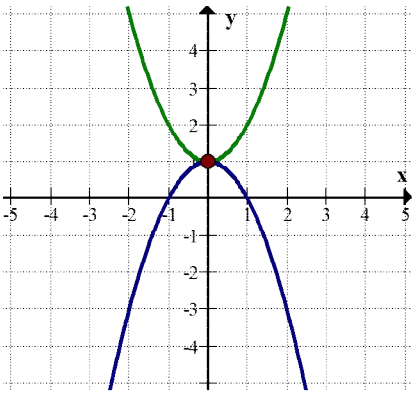
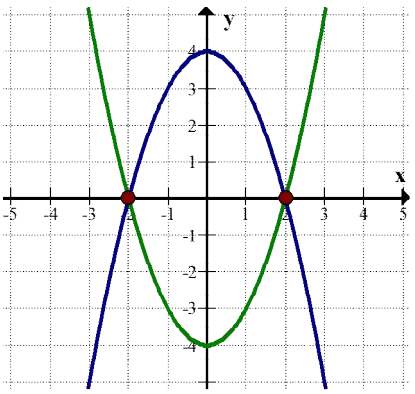
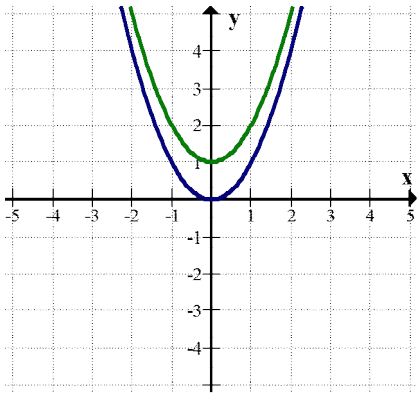
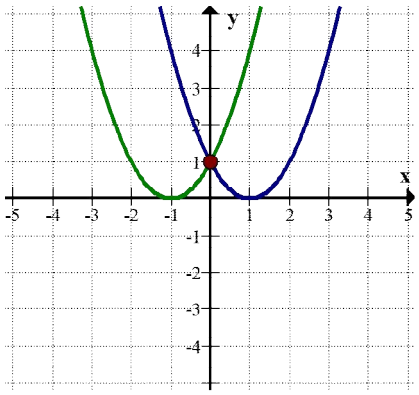
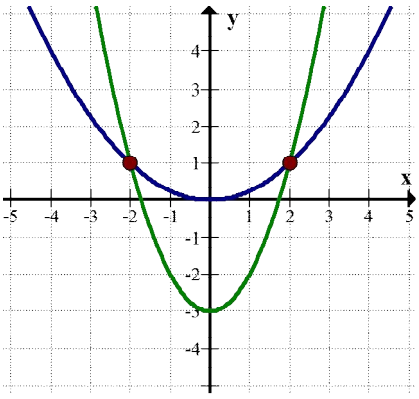
C11 - 8.1 - Number of Intersections/Solutions Notes

No Solutions	One Solution	Two Solutions
		
		
		

OR INFINITE SOLUTIONS: Congruent Graphs

C11 - 8.2 - Linear/Quadratic Systems Substitution Notes

Solve by substitution.

$y = x + 1$ $y = x^2 - 1$ Equation 1 Equation 2

$x + 1 = x^2 - 1$ Equation 1 = Equation 2
$-1 \quad -1$
$x = x^2 - 2$
$-x \quad -x$ Solve for x
$0 = x^2 - x - 2$
$0 = (x + 1)(x - 2)$

$x = -1, 2$

$y = x + 1$ $y = x + 1$
$y = (-1) + 1$ $y = (2) + 1$
$y = 0$ $y = 3$ Solve for y Solve for y

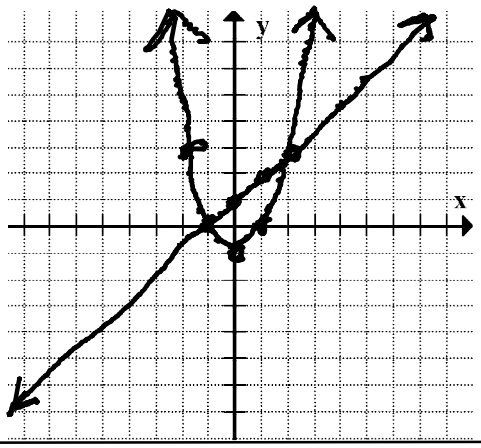
(−1,0) (2,3) Intersection #1 Intersection #2

Solve by graphing.

$y = x + 1$
$y = x^2 - 1$

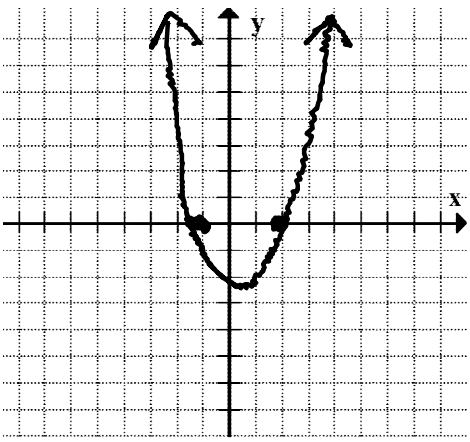
(−1,0)

(2,3)



$y = (x + 1)(x - 2)$

$x = -1,2$

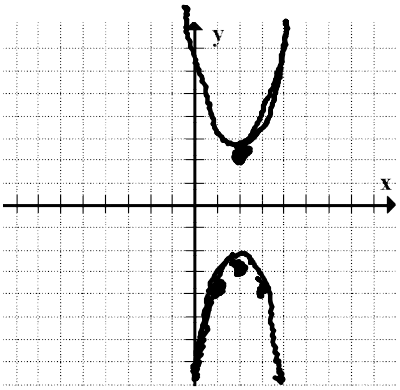


Notice the graph of the third equation x-intercepts is the x answer to the question

C11 - 8.2 - Quadratic Systems $b^2 - 4ac$ Notes

Solve by substitution.

$y = x^2 - 4x + 5$ $\quad\quad$ $y = -x^2 + 4x - 6$



$x^2 - 4x + 5 = -x^2 + 4x - 6$

$2x^2 - 8x + 11 = 0$

Algebra
Cannot Factor

$y = 2x^2 - 8x + 11$

$b^2 - 4ac$

$(-8)^2 - 4(2)(11) = -24$

Discriminant

No Solution