C11 - 8.3 - Quadratic Systems $b^2 - 4ac < 0$ Notes

Solve by Substitution.

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

$x^2 - 4x + 5 = -x^2 + 4x - 6$ Algebra
$2x^2 - 8x + 11 = 0$ Cannot Factor

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

$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ Discriminant

$x = \dfrac{-(-8) \pm \sqrt{(-8)^2 - 4(2)(11)}}{2(2)}$ $\boxed{b^2 - 4AC < 0}$

$x = \dfrac{8 \pm \sqrt{-24}}{4}$ $b^2 - 4ac$
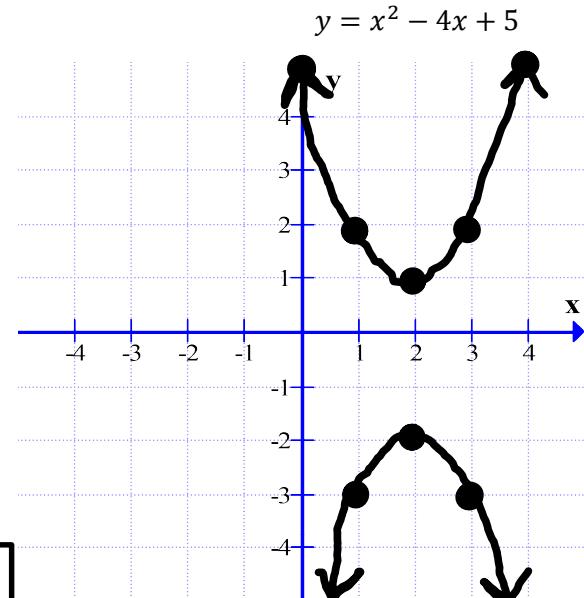
$(-8)^2 - 4(2)(11) = -24$

No Solution No Solution

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

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

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