

# Quadratic Formula Example: "Something's Weird!"

$$x^2 - 3x + 5 = 0$$

$$a = 1 \quad b = -3 \quad c = 5$$

$$Q.F. \Rightarrow x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(5)}}{2(1)}$$

$$x = \frac{3 \pm \sqrt{9 - 20}}{2}$$

$$x = \frac{3 \pm \sqrt{-11}}{2}$$

Remember,  
 $\sqrt{\quad}$  function  
has domain  $[0, \infty)$

So...  $\sqrt{-11}$  not a real number

$$\Rightarrow x^2 - 3x + 5 = 0$$

has no real number solutions.

Ex: Solve

$$x^2 + 4 = 0$$

$$x^2 + 0x + 4 = 0$$

$$a = 1 \quad b = 0 \quad c = 4$$

$$Q.F. \Rightarrow x = \frac{-(0) \pm \sqrt{(0)^2 - 4(1)(4)}}{2(1)}$$

$$= \frac{\pm \sqrt{-16}}{2} \quad \text{not a real \#}$$

So  $x^2 + 4 = 0$  has no real solutions  
(Algebra 1)