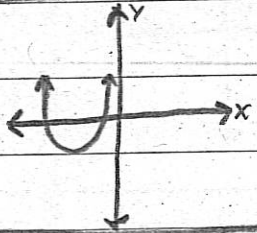
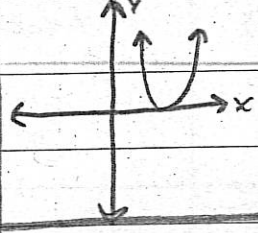
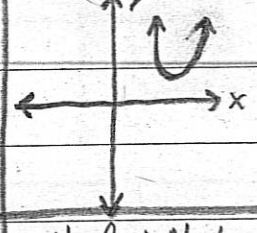


The Quadratic Formula and the Discriminant

Quadratic Formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Discriminant: $b^2 - 4ac$

Discriminant	$b^2 - 4ac > 0$	$b^2 - 4ac = 0$	$b^2 - 4ac < 0$
Example Graph			
Number of Solutions	2 Solutions	1 Solution	No Real Number Solutions

What are the solutions? $x^2 - 4$

Ex. $x^2 - 4x = 21$
 $-21 \quad -21$

$$x^2 - 4x - 21 = 0$$

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

$$x = \frac{4 \pm \sqrt{16 - (-84)}}{2(1)}$$

$$x = \frac{4 \pm \sqrt{100}}{2}$$

$$x = \frac{4 \pm 10}{2}$$

$$x = \frac{4 + 10}{2} = \frac{14}{2} = 7$$

$$x = \frac{4 - 10}{2} = \frac{-6}{2} = -3$$

$$\boxed{\begin{matrix} x = 7 \\ x = -3 \end{matrix}}$$