

# Algebra 1

Chapter 9  
Section 9-3

## Zeros of a Function

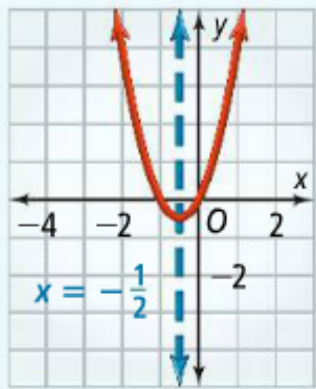
The zeros (or roots) of a function are the x-intercepts of a graph. They can be found using a quadratic equation in the form:

$$ax^2 + bx + c = 0$$

\*\*Zeros are always ordered pairs in the form (x, 0)

# Find Zeros Using Graph of the Related Function

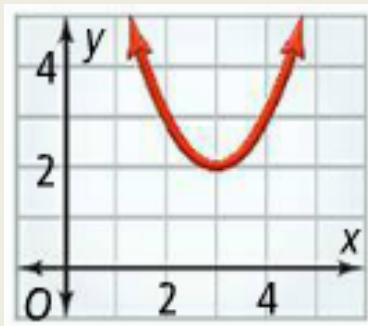
$$1.5x^2 + 1.5x = 0$$



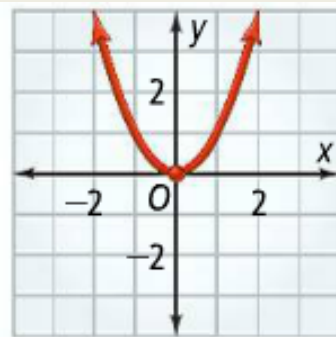
$(-1, 0)$  &  $(0, 0)$

None!

$$x^2 - 6x + 11 = 0$$



$$x^2 = 0$$



$(0, 0)$

# Finding Real Roots

Solving Quadratic Equations by Using Square Roots:

$$x^2 - 36 = 0$$

$$+36 \quad +36$$

$$\sqrt{x^2} = \sqrt{36}$$

$$x = \pm 6$$

$$20x^2 - 45 = 0$$

$$+45 \quad +45$$

$$\frac{20x^2}{20} = \frac{45}{20}$$

$$\sqrt{x^2} = \sqrt{\frac{9}{4}}$$

$$x = \pm \frac{3}{2}$$

# Finding Real Roots

## Solving Quadratic Equations by Using Square Roots:

$$x^2 + 49 = 0$$

$$\begin{array}{cc} -49 & +49 \\ \sqrt{x^2} & = \sqrt{-49} \end{array}$$

No Solution

There is no real root!

$$x^2 - 1.21 = 0$$

$$\begin{array}{cc} +1.21 & +1.21 \\ \sqrt{x^2} & = \sqrt{1.21} \end{array}$$

$$x = \pm 1.1$$

# Finding Real Roots

## Solving Quadratic Equations by Using Square Roots:

$$\frac{7x^2}{7} = \frac{0}{7}$$

$$\sqrt{x^2} = \sqrt{0}$$

$$x = 0$$