CHAPTER 11: RADICAL EXPRESSIONS

10.3 Solving Quadratics with Square Roots

OBJECTIVES

- I can identify a quadratic equation
- I can solve a quadratic equation by taking a square root

PART 1: QUADRATIC EQUATIONS

Definition **Standard Form of a Quadratic Equation**

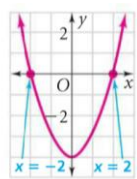
A **quadratic equation** is an equation that can be written in the form $ax^2 + bx + c = 0$, where $a \neq 0$. This form is called the **standard form of a quadratic equation.**

A quadratic equation can have two, one, or no real-number solutions. In a future course you will learn about solutions of quadratic equations that are not real numbers. In this course *solutions* refers to real-number solutions.

The solutions of a quadratic equation and the related x-intercepts are often called **roots of the equation** or **zeros of the function.**

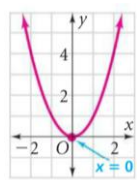
PART 1: QUADRATIC EQUATIONS

a. $x^2 - 4 = 0$



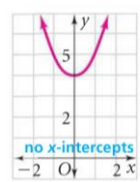
There are two solutions, ± 2.

b. $x^2 = 0$



There is one solution, 0.

c. $x^2 + 4 = 0$



There is no solution.

PART 2: SOLVING WITH SQUARE ROOTS

Definition **Standard Form of a Quadratic Equation**

A **quadratic equation** is an equation that can be written in the form $ax^2 + bx + c = 0$, where $a \neq 0$. This form is called the **standard form of a quadratic equation.**

2 Solve each equation.

a. $t^2 - 25 = 0$ **b.** $3n^2 + 12 = 12$ **c.** $2g^2 + 32 = 0$

PART 2: SOLVING WITH SQUARE ROOTS

3 A city is planning a circular fountain. The depth of the fountain will be 3 ft and the volume will be 1800 ft^3. Find the radius of the fountain.

CAN YOU?? PROVE IT!!

- I can identify a quadratic equation
  - Write an example of a quadratic equation and a non-example
- I can solve a quadratic equation by taking a square root

a. Solve $x^2 - 4 = 0$ and $2x^2 - 8 = 0$

b. Critical Thinking Why does it make sense that the graphs have the same x-intercepts?