**Example 1:** Find the solution(s) to:  $x^2 = 9$ 

**Example 1:** Find the solution(s) to:  $x^2 = 9$ 

**Example 1:** Find the solution(s) to:  $x^2 = 9$ 

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

**Example 1:** Find the solution(s) to:  $x^2 = 9$ 

$$\sqrt{x^2} = \sqrt{9} = 3$$

**Example 1:** Find the solution(s) to:  $x^2 = 9$ 

• why? 
$$|x| = \sqrt{x^2} = \sqrt{9} = 3$$

**Example 1:** Find the solution(s) to:  $x^2 = 9$ 

(\*wby?) 
$$|x| = \sqrt{x^2} = \sqrt{9} = 3$$
  
Since  $|x| = 3$ , the solutions are:  $x = 3, -3$ 

**Example 1:** Find the solution(s) to:  $x^2 = 9$ Taking the square root of both sides, we get:

(withy?) 
$$|x| = \sqrt{x^2} = \sqrt{9} = 3$$
  
Since  $|x| = 3$ , the solutions are:  $x = 3, -3$   
**Example 2:** Find the solution(s) to:  
 $x^2 = 5$ 

**Example 1:** Find the solution(s) to:  $x^2 = 9$ Taking the square root of both sides, we get:  $(xy)^2$   $|x| = \sqrt{x^2} = \sqrt{9} = 3$ Since |x| = 3, the solutions are: x = 3, -3 **Example 2:** Find the solution(s) to:  $x^2 = 5$ 

**Example 1:** Find the solution(s) to:  $x^2 = 9$ Taking the square root of both sides, we get:  $(x) = \sqrt{x^2} = \sqrt{9} = 3$ Since |x| = 3, the solutions are: x = 3, -3 **Example 2:** Find the solution(s) to:  $x^2 = 5$ Taking the square root of both sides, we get:

$$\sqrt{x^2} = \sqrt{5}$$

**Example 1:** Find the solution(s) to:  $x^2 = 9$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ Since |x| = 3, the solutions are: x = 3, -3 **Example 2:** Find the solution(s) to:  $x^2 = 5$ Taking the square root of both sides, we get:

 $\sqrt{x^2} = \sqrt{5} = \sqrt{5}$ 

**Example 1:** Find the solution(s) to:  $x^2 = 9$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ Since |x| = 3, the solutions are: x = 3, -3 **Example 2:** Find the solution(s) to:  $x^2 = 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ 

**Example 1:** Find the solution(s) to:  $x^2 = 9$ Taking the square root of both sides, we get:  $(x) = \sqrt{x^2} = \sqrt{9} = 3$ Since |x| = 3, the solutions are: x = 3, -3 **Example 2:** Find the solution(s) to:  $x^2 = 5$ Taking the square root of both sides, we get:  $(x) = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ 

**Example 1:** Find the solution(s) to:  $v^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 - 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:

**Example 1:** Find the solution(s) to:  $v^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 - 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

**Example 1:** Find the solution(s) to:  $v^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 - 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

**Example 1:** Find the solution(s) to:  $v^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 - 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

**Example 1:** Find the solution(s) to:  $v^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 - 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

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

**Example 1:** Find the solution(s) to:  $v^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 - 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

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

**Example 1:** Find the solution(s) to:  $v^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 - 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

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

**Example 1:** Find the solution(s) to:  $v^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 - 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

Following Frog and Toad we need to Add 4 before taking the square root This gives us:

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

**Example 1:** Find the solution(s) to:  $x^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 = 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

Following Frog and Toad we need to Add 4 before taking the square root This gives us:

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

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

**Example 1:** Find the solution(s) to:  $x^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 = 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

Following Frog and Toad we need to Add 4 before taking the square root This gives us:

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

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

**Example 1:** Find the solution(s) to:  $x^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 = 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ 

Following Frog and Toad we need to Add 4 before taking the square root This gives us:

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

• why? 
$$|x| = \sqrt{x^2} = \sqrt{4} = 2$$

**Example 1:** Find the solution(s) to:  $x^2 - 0$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = 3$ ▶ why? Since |x| = 3, the solutions are: x = 3, -3**Example 2:** Find the solution(s) to:  $x^2 = 5$ Taking the square root of both sides, we get:  $|x| = \sqrt{x^2} = \sqrt{9} = \sqrt{5}$ ▶ why? Since  $|x| = \sqrt{5}$ , the solutions are:  $x = \sqrt{5}, -\sqrt{5}$ **Example 3:** Find the solution(s) to:  $x^2 - 4 = 0$ Following Frog and Toad we need to Add 4 before taking the square root This gives us:

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

Now we can Take the square root of both sides, to get:

why? 
$$|x| = \sqrt{x^2} = \sqrt{4} = 2$$
  
ince  $|x| = 2$ , the solutions are:  $x = 2, -2$ 

Si