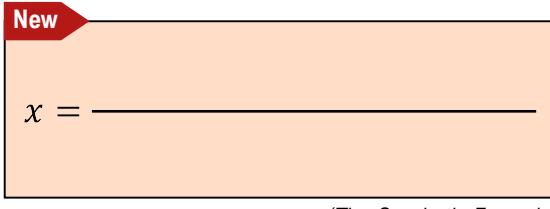


## **TOPIC: THE QUADRATIC FORMULA**

### **Intro to the Quadratic Formula**

- ◆ The solution(s) to \_\_\_\_\_ quadratic equation  $ax^2 + bx + c = 0$  can be found using the **quadratic formula**.



### **EXAMPLE**

Find the solution(s) using the quadratic formula.

**(A)**

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

**(B)**

$$x^2 - 8x + 16 = 0$$

## **TOPIC: THE QUADRATIC FORMULA**

### **PRACTICE**

Find the solution(s) using the quadratic formula.

(A)  $x^2 + 6x - 7 = 0$

(B)  $\frac{3}{2}z^2 - \frac{5}{4}z - 1 = 0$

(C)  $4x^2 - 4x + 1 = 0$

### **PRACTICE**

Find the solution(s) using the quadratic formula.

(A)  $4(x - 2)^2 - 5 = x + 7$

(B)  $\frac{3}{2}(x + 5)^2 - 4 = x + 1$

## TOPIC: THE QUADRATIC FORMULA

### The Discriminant

◆ You can find **how many real** or **imaginary** solutions a quadratic has *WITHOUT* solving by using the discriminant.

► **Discriminant:** the expression under the radical in the quadratic formula.

► \_\_\_\_\_ determines number/type of solutions: Discriminant is **Positive** = \_\_\_\_\_ real solution(s)

**Zero** = \_\_\_\_\_ real solution(s)

**Negative** = \_\_\_\_\_ real solution(s)

\_\_\_\_\_ \_\_\_\_\_ solutions

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

*(Discriminant)*

*(Quadratic Formula)*

EXAMPLE: For the following quadratic equations, determine the number and type of solutions. Do not solve.

(A)  $2x^2 + 3x - 2 = 0$

(B)  $4x^2 + x + 2 = 0$

(C)  $x^2 - 10x + 25 = 0$

$b^2 - 4ac$  is: [ + | 0 | - ]

$b^2 - 4ac$  is: [ + | 0 | - ]

$b^2 - 4ac$  is: [ + | 0 | - ]

## **TOPIC: THE QUADRATIC FORMULA**

### **PRACTICE**

Determine the number and type of solutions of the given quadratic equation. Do not solve.

**(A)**

$$x^2 + 8x + 16 = 0$$

**(B)**

$$-4x^2 + 4x + 5 = 0$$