

## Warm Up!

Which method would you use to solve?

- $3x^2 - 7x + 15 = 0$

Time for the Super, **Ultimate**,  
*Awesome*, Mathematical Tool!

## The Quadratic Formula!!!!!!!!!!

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

- Why is it Super, Ultimate, and Awesome?

## Steps

- Step 1:
  - Remember the Quadratic Formula
- Step 2:
  - Identify  $a$ ,  $b$  and  $c$
- Step 3:
  - Plug  $a$ ,  $b$  and  $c$
- Step 4:
  - Simplify/Solve

### Example

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

### You try

- $3x^2 + 4x + 1 = 0$

## What about This!

- $2x^2 + 2x + 5 = 0$
- Imaginary Roots... If only we had a special math formula to warn us about this...

## Let's think

What part of this Formula will cause us to have an Imaginary number.

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

## Warm-Up

- Remember the Quadratic Formula and use it to solve for the solutions.

$$5x^2 + 3x - 1 = 0$$

## The Discriminant

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

Tells you the number and type of solutions.

Three Cases:

Determine the number and type of solutions for the following problems

- $x^2 - 6x = -10$

- $x^2 + 9 = 6x$

- $x^2 = 6x - 8$

Three More

- $x^2 - 4x + 10 = 0$

- $x^2 + 3x - 6 = 0$

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

## Book assignment

- Page 295 Numbers 4-7, 10-15.





## Using the Quadratic Formula

**Solve each equation with the quadratic formula.**

1)  $v^2 + 2v - 8 = 0$

2)  $k^2 + 5k - 6 = 0$

3)  $2v^2 - 5v + 3 = 0$

4)  $2a^2 - a - 13 = 2$

5)  $2n^2 - n - 4 = 2$

6)  $b^2 - 4b - 14 = -2$

7)  $8n^2 - 4n = 18$

8)  $8a^2 + 6a = -5$

9)  $10x^2 + 9 = x$

10)  $n^2 = 9n - 20$

11)  $3a^2 = 6a - 3$

12)  $x^2 = -3x + 40$

13)  $9x^2 - 11 = 6x$

14)  $4a^2 - 8 = a$

15)  $14m^2 + 1 = 6m^2 + 7m$

16)  $4x^2 + 4x - 8 = 1$

