Secondary 2
lesson 5.4

The Quadratic Formula

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

Objectives:

- *Know the Standard form of an equation*
- *Find 'a', 'b', and 'c'*
- *Understand the discriminant and how to use it*
- *Be able to solve a quadratic by using the quadratic formula*

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The Quadratic Formula ...

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

For Quadratic Equations

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

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The discriminant

$$b^2 - 4ac$$

If $b^2 - 4ac$ = a positive number, then there are two real answers

If $b^2 - 4ac$ = a negative number, then there are two imaginary answers

If $b^2 - 4ac$ = zero, then there is one repeated rational answer

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Solve by using the quadratic formula

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

Example 1:

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

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Solve by using the quadratic formula

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

Example 2:

$-x^2 - 4x = -2$

Example 3:

$2x^2 - 28x = -98$

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Solve by using the quadratic formula

Example 4:

$-3x^2 + 17x = 20$

Example 5:

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

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Solve by using the quadratic formula

Example 6:

$3x^2 = 20$

Example 7:

$5x^2 + 3x = 0$