LT 5.3

Topic: Discriminant How can you solve a quadratic equation and apply it with real world applications?

Dec 10-2:31 PM



Is there a way to tell what are the x intercepts going to be?

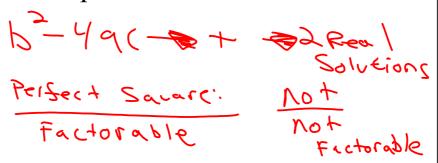
We use the Discriminant.... 4 - 4 = 4 = 4 = 4 = 6



Determing The Number of Solutions of a Quadratic Equation

Consider the quadratic equation $ax^2 + bx + c = 0$

If b^2 - 4ac is **positive** (> 0), then the equation has 2 real solutions.



Jan 27-8:20 AM

\$5.3 Day 1 \$\frac{1}{12}\$

Determing The Number of Solutions of a Quadratic Equation

Consider the quadratic equation $ax^2 + bx + c = 0$

If b^2 - 4ac is **zero**, then the equation has

1 Real Solution.

b- 4 a coop | Real Solution



Determing The Number of Solutions of a Quadratic Equation

Consider the quadratic equation $ax^2 + bx + c = 0$

If b^2 - 4ac is **negative** (< 0), then the equation has **no real solution** (2 Imaginary Solutions).



Dec 12-2:17 PM

\$\frac{1}{12} \tag{5.3 Day 1 \$\frac{1}{12}\$

Let's practice...

- 1. Find the discriminant
- 2. Find the number of solutions
- 3. Find the type of solutions

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

 $(-5)^2 - 4(3)(2)$



Let's practice...

- 1. Find the discriminant
- 2. Find the number of solutions
- 3. Find the type of solutions

2.
$$4x^2 - 20x + 25 = 0$$

Jan 27-8:30 AM



Let's practice...

- 1. Find the discriminant
- 2. Find the number of solutions
- 3. Find the type of solutions

3.
$$2x^2 + 3x = -7$$

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

$$3^2 - 4(2)(7)$$

$$9 - 56$$

$$-47$$



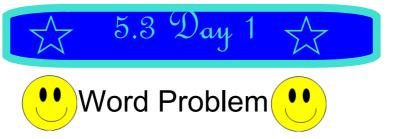
Let's practice...

- 1. Find the discriminant
- 2. Find the number of solutions
- 3. Find the type of solutions

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

 $x^2 - 5 - 2x = 0$
 $(-2)^2 - 4(1)(-5)$

Jan 27-8:31 AM



Taylor Swift has an online shopping store that Ms. Olson Loves to shop at. The profit Taylor makes each year is given by $P = 0.004x^211x + 29980$ where x is the number of products she sells. Her goal is to make \$50,000 each year.

- 1. Write the equation that would represent a \$50,000 profit.
- 2. Write the equation in standard form
- 3. Find the discriminant
- 4. Will Taylor Swift make the budget?