1.5 day 2

Sunday, September 8, 2013 7:17 PM

☆ The two methods studied today will solve ALL quadratic equations.

Today is Type 3 - Quadratic Formula

Type 4 - Calculator

The Quadratic Formula solves $ax^2+bx+c=0$.

b^2-4ac is called the discriminant.

Use only the coefficients in the formula.

Solve for x over the complex numbers using the Quadratic Formula.

A. $x^2+5x-2=0$

$b^2-4ac = 5^2-4(1)(-2)$

$= 25+8$

$= 33$ (☆ this implies our solutions will be irrational because this is NOT a perfect square)

$x = \frac{-5\pm\sqrt{33}}{2}$

B. $-3x^2+x-4=0$

$b^2-4ac = 1^2-4(-3)(-4)$

$= 1-48$

$= -47$ (☆ this implies our solutions will be NONREAL)

$x = \frac{-1\pm\sqrt{-47}}{2(-3)}$

$$= \frac{-1 \pm i\sqrt{47}}{-6}$$

Questions to consider: When will you have 1 rational solution and when will you have 2 rational solutions?

Type 4: Solve for x over the reals using your calculator.

→ (* why not complex? Because you can't see them on the Real coordinate plane.)

A. $x^2 + 3x = 5$

Put in $y1 = x^2 + 3x$

Put in $y2 = 5$

Now calculate the intersection twice to find both solutions.

$x = 1.19, -4.19$ (just round to nearest hundredth)

B. $3x^2 + 4x - 17 = 0$

Put in $y1 = -3x^2 + 4x - 17$

Put in $y2 = 0$

When you graph, you won't "see" $y=0$ because it is hidden by the x-axis. It is there and calculate the intersections.

$x = 1.81, -3.14$

C. $12x^2 - 48x + 124 = 256$

Put in $y_1 = 12x^2 - 48x + 124$

Put in $y2 = 256$

Change window so you can see a y value of 256.

$x = -1.87, 5.87$

Now do the Google Form on my website!