

April 17, 2015
 * Exam #3 - Wednesday
 * Solving Quadratics
 • Square Root Property
 • Completing the Square
 • Quadratic Formula
 * Complex Numbers
 * Finding linear equations
 * Final - Monday, April 27
 @ 10:20 am in
 this room.

Apr 17-10:55 AM

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

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

↓
Quadratic Formula

Apr 17-11:32 AM

$$-3x^2 - 5x + 10 = 0$$

Using the Quadratic Formula

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

① State a, b, c
 $a = -3, b = -5, c = 10$

② Plug in values

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(-3)(10)}}{2(-3)}$$

$$= \frac{5 \pm \sqrt{25 + 120}}{-6}$$

$$= \frac{5 \pm \sqrt{145}}{-6}$$

$$x = -\frac{5 \pm \sqrt{145}}{6}$$

2 Real Solutions

Apr 17-11:36 AM

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

↓ Discriminant

Types of Solutions

① $b^2 - 4ac > 0$; two Real Solutions
 ② $b^2 - 4ac = 0$; one Real Solution
 ③ $b^2 - 4ac < 0$; two Complex Solutions

Apr 17-11:43 AM

Do 11.2 & find the Discriminant

Apr 17-11:47 AM

$$(2z - 3)^2 + 25 = 0$$

$$\sqrt{(2z - 3)^2} = \pm \sqrt{-25}$$

$$2z - 3 = \pm 5i$$

$$2z = 3 \pm 5i$$

$$z = \frac{3 \pm 5i}{2}$$

$$\left(\frac{3 + 5i}{2} - 3\right)^2 + 25 = 0$$

$$\left(\frac{3 + 5i - 6}{2}\right)^2 + 25 = 0$$

$$\left(\frac{-3 + 5i}{2}\right)^2 + 25 = 0$$

$$\frac{(-3 + 5i)^2}{4} + 25 = 0$$

$$\frac{9 - 30i + 25i^2}{4} + 25 = 0$$

$$\frac{9 - 30i - 25}{4} + 25 = 0$$

$$\frac{-16 - 30i}{4} + 25 = 0$$

$$-4 - 7.5i + 25 = 0$$

$$21 - 7.5i = 0$$

Apr 17-11:56 AM

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

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

a.) $6 \cdot \frac{1}{2} = 3$
 b.) $(3)^2 = 9$

$$x^2 + 6x + 9 = -2 + 9$$

$$\sqrt{(x+3)^2} = \pm\sqrt{7}$$

$$x+3 = \pm\sqrt{7}$$

$$x = -3 \pm \sqrt{7}$$

ok

$$(-3 - \sqrt{7})^2 + 6(-3 - \sqrt{7}) + 2 = 0$$

$$9 + 6\sqrt{7} + 7 - 18 - 6\sqrt{7} + 2 = 0$$

$$9 + 7 + 2 - 18 = 0$$

$$18 - 18 = 0$$

$$0 = 0$$

Apr 17-12:02 PM

$$\frac{82 + 14\sqrt{33}}{4} - \frac{-49 - 7\sqrt{33}}{2} + 4 = 0$$

$$\frac{41}{2} + \frac{7\sqrt{33}}{2} - \frac{-49 - 7\sqrt{33}}{2}$$

Apr 17-12:10 PM

$$x = -\frac{1}{4} \pm \frac{5}{4}$$

$$\textcircled{1} x = \frac{-1+5}{4} = \frac{4}{4} = 1$$

$$\textcircled{2} x = \frac{-1-5}{4} = -\frac{6}{4} = -\frac{3}{2}$$

$$x = \frac{6}{2} \pm \frac{2i}{2}$$

$$= 3 \pm i$$

$$x = \frac{1}{4} \pm \frac{1}{4}i \rightarrow \frac{1 \pm i}{4}$$

Apr 17-12:33 PM

$$\frac{-c}{a} + \frac{b^2}{4a^2}$$

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

$$\frac{4a^{\cancel{2}}}{a} = 4a$$

Apr 17-12:47 PM