

Daily Agenda

Learning Target: I can solve quadratic equations using completing the square.

Homework	Assessments
3.3 Day 2 Formative	3.1 to 3.3 Quiz 10/12 - No Calc Chapter Test 10/24 - Calc and No Calc

Anything is possible. Anything can be.
-Shel Silverstein

Nov 15-8:24 PM

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

$$\begin{aligned} & \frac{-2x}{-2x} \quad \frac{-2x}{-2x} \\ & x^2 - 4x + 2 = 0 \\ x = & \frac{4 \pm \sqrt{16 - 4(1)(2)}}{2} = \frac{4 \pm \sqrt{8}}{2} \\ & = \frac{4 \pm \sqrt{4 \cdot 2}}{2} \\ & = \frac{4 \pm 2\sqrt{2}}{2} = 2 \pm \sqrt{2} \end{aligned}$$

Oct 7-11:12 AM

$$\begin{aligned} x^2 - 2x + 8 &= 0 \\ x &= \frac{2 \pm \sqrt{4 - 4(1)(8)}}{2} \\ &= \frac{2 \pm \sqrt{4 - 32}}{2} = \frac{2 \pm \sqrt{-28}}{2} \end{aligned}$$

Oct 7-11:15 AM

10) $x^2 - 6x + 4 = 0$

$$\begin{aligned} x &= \frac{6 \pm \sqrt{36 - 4(1)(4)}}{2} \\ &= \frac{6 \pm \sqrt{36 - 16}}{2} = \frac{6 \pm \sqrt{20}}{2} \\ &= \frac{6 \pm \sqrt{4 \cdot 5}}{2} \\ &= \frac{6 \pm 2\sqrt{5}}{2} \\ &= 3 \pm \sqrt{5} \end{aligned}$$

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3.3 Solving Quadratic Equations

Solve the equation

$$x^2 + 12x - 5 = 0$$

$$\begin{aligned} x^2 + 12x &= 5 \\ +36 \quad +36 & \\ \hline x^2 + 12x + 36 &= 41 \\ \sqrt{(x+6)^2} &= \sqrt{41} \\ x+6 &= \pm\sqrt{41} \end{aligned}$$

$$\begin{aligned} x+6 &= \pm\sqrt{41} \\ -6 \quad -6 & \\ \hline x &= -6 \pm \sqrt{41} \end{aligned}$$

Q.F.

$$\begin{aligned} x &= \frac{-12 \pm \sqrt{144 - 4(1)(-5)}}{2} \\ &= \frac{-12 \pm \sqrt{164}}{2} \\ &= \frac{-12 \pm \sqrt{4 \cdot 41}}{2} \\ &= \frac{-12 \pm 2\sqrt{41}}{2} \\ &= -6 \pm \sqrt{41} \end{aligned}$$

Sep 15-10:40 PM

3.3 Solving Quadratic Equations

Solve the equation

$$\begin{aligned} 3x^2 + 6x - 2 &= 0 \\ 3x^2 + 6x &= 2 \\ 3(x^2 + 2x + 1) &= 2 + 3 \\ 3(x^2 + 2x + 1) &= 5 \end{aligned}$$

$$\begin{aligned} \frac{3(x+1)^2}{3} &= \frac{5}{3} \\ \sqrt{(x+1)^2} &= \sqrt{\frac{5}{3}} \\ x+1 &= \pm\sqrt{\frac{5}{3}} \\ -1 \quad -1 & \\ \hline x &= -1 \pm \sqrt{\frac{5}{3}} \\ &= -1 \pm \frac{\sqrt{5} \cdot \sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} \\ &= -1 \pm \frac{\sqrt{15}}{3} = -1 \pm \frac{1}{3}\sqrt{15} \end{aligned}$$

Sep 15-10:40 PM

Solve the equation

$$x^2 - 6x + 4 = 0$$

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Discriminant

$$b^2 - 4ac$$

tells us about the solutions to a quadratic equation

Positive

2 real solutions

Zero

1 real solution

Negative

2 imaginary solutions

Oct 4-7:50 AM

$$f(x) = x^2 - 3x + 4$$

Find $f(-2)$

$$(-2)^2 - 3(-2) + 4 = 14$$

4 + 6 + 4

Will $f(x)$ ever equal -2? **No**

$$\begin{array}{r} -2 = x^2 - 3x + 4 \\ + 2 \quad \quad + 2 \\ \hline 0 = x^2 - 3x + 6 \end{array}$$

$b^2 = 4ac$

$$(-3)^2 - 4(1)(6)$$

$$9 - 24 = -15$$

noreal sol.

Sep 15-10:40 PM

$$f(x) = x^2 + 7x + 9$$

will $f(x)$ ever equal -5?

$$-5 = x^2 + 7x + 9$$

$$0 = x^2 + 7x + 14$$

$$7^2 = 4(1)(14)$$

$$49 - 56 = -7$$

no

Oct 7-11:39 AM

$$f(x) = x^2 - 3x + 4$$

Find x when $f(x) = 8$

$$8 = x^2 - 3x + 4$$

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

$$0 = (x-4)(x+1)$$

$$x = 4, -1$$

$$(4, 8)$$

$$(-1, 8)$$

$$(0, 4)$$

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