

Daily Agenda

Learning Target: I can solve for complex solutions to a quadratic equation.

Homework	Assessments
3.4 Formative	Chapter Test 10/24 - Calc and No Calc

No one is perfect...that's why pencils have erasers.
-Author Unknown

Nov 15-8:24 PM

Number Talks

81×25

Allyson

$$\begin{array}{r} 81 \times 20 = 1620 \\ 81 \times 5 = 405 \\ \hline 2025 \end{array}$$

Dylan

$$\begin{array}{r} 25 \times 8 = 200 \\ \times 10 \\ \hline 2000 \\ + 25 \\ \hline 2025 \end{array}$$

Tom

$$\begin{array}{r} 25 \times 4 = 100 \\ \times 20 \\ \hline 2000 \\ + 25 \\ \hline 2025 \end{array}$$

Dan

$$\begin{array}{r} 80 \div 4 = 20 \\ \times 100 \\ \hline 2000 \\ + 25 \\ \hline 2025 \end{array}$$

Shannon

like \$

$$\begin{array}{r} 4Q = 100P \\ 8Q = 200P \\ 80Q = 2000P \\ + 1Q \\ \hline 2025 \end{array}$$

Mrs. Nash

$$\begin{array}{r} 81 \times 25 \\ 81 \times 100 = 8100 \\ \div 4 \\ \hline 2000 \\ + 25 \\ \hline 2025 \end{array}$$

Oct 12-5:55 PM

3.4 Complex Numbers

<p>imaginary unit</p> $i = \sqrt{-1}$ $i^2 = -1$	<p>complex number</p> $a + bi$ <p style="text-align: center; color: red;"> real imaginary </p> <p>complex conjugates</p> $a + bi, a - bi$
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Sep 15-10:27 PM

Simplify

$\frac{\sqrt{-16}}{\sqrt{16} \cdot \sqrt{-1}} = \frac{4i}{4i}$	$\frac{\sqrt{-27}}{\sqrt{9} \cdot \sqrt{3} \cdot \sqrt{-1}} = \frac{3\sqrt{3}i}{3\sqrt{3}i}$	$\sqrt{-9} \cdot \sqrt{-4} = 3i \cdot 2i = 6i^2 = 6(-1) = -6$
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Jan 6-8:24 AM

Solve.

$$x^2 - 6x + 73 = 0$$

$$x^2 - 6x + 9 = -73 + 9$$

$$\sqrt{(x-3)^2} = \sqrt{-64}$$

$$x-3 = \pm 8i$$

$$x = 3 \pm 8i$$

$$x = \frac{6 \pm \sqrt{36 - 4(73)}}{2}$$

$$= \frac{6 \pm \sqrt{36 - 292}}{2}$$

$$= \frac{6 \pm \sqrt{-256}}{2}$$

$$= \frac{6 \pm 16i/2}{2} = 3 \pm 8i$$

Oct 4-7:50 AM

Solve.

$$x^2 - 13x + 12 = 0$$

Oct 4-7:50 AM

Solve.

$$x^2 - 14x + 50 = 0$$

$$x^2 - 14x = -50$$

$$\begin{array}{r} x^2 - 14x = -50 \\ +49 \quad +49 \\ \hline \sqrt{(x-7)^2} = \sqrt{-1} \\ x-7 = \pm i \\ x = 7 \pm i \end{array}$$

Oct 4-7:50 AM

Think-Pair-Share

How will we know if we are going to have complex solutions? What will the graph of a quadratic with complex solutions look like?

$y = x^2 - 14x + 50$

Sep 15-10:42 PM

Write the equation of a quadratic with x-intercepts 2 and 5.

$(2, 0)$
 $(5, 0)$
 $x = 2$
 $x = 5$

$$(x-2)(x-5) = 0$$

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

$$x^2 - 7x + 10 = 0$$

$$y = x^2 - 7x + 10$$

Oct 13-9:04 AM

Write the equation of a quadratic with solutions

$5 + \sqrt{2}$ $5 - \sqrt{2}$

$$(x - 5 + \sqrt{2})(x - 5 - \sqrt{2}) = 0$$

$$x^2 - 5x - \sqrt{2}x - 5x + 25 + 5\sqrt{2} + \sqrt{2}x - 5\sqrt{2} - 2 = 0$$

$$x^2 - 10x + 23 = 0$$

Sol. $5 + \sqrt{2}, 5 - \sqrt{2}$

$$x = 5 \pm \sqrt{2}$$

$$\begin{array}{r} x - 5 = \pm \sqrt{2} \\ (x - 5)^2 = 2 \\ x^2 - 10x + 25 = 2 \\ x^2 - 10x + 23 = 0 \end{array}$$

Sum: 10
prod: $(5 + \sqrt{2})(5 - \sqrt{2})$
 $25 - 2 = 23$

$$x^2 - \text{Sum} \cdot x + \text{prod} = 0$$

Oct 13-9:04 AM