

Class:	ALGEBRA 2			
Teacher:	DAILY	HERN	LUNETTA	PEREIRA
Period:	1, 2	1	3, 5, 6	3, 4
Assignment:	WEEK 2			

WEEK	ASSIGNMENT	DATE
1	I can add complex numbers. (Practice, do as many as you wish. Answers provided.)	4/20
	Are You Ready? I can add complex numbers. (Required, complete after you have practiced.)	
	I can subtract complex numbers. (Practice, do as many as you wish. Answers provided.)	4/21
	Are You Ready? I can subtract complex numbers. (Required, complete after you have practiced.)	
	I can multiply complex numbers. (Practice, do as many as you wish. Answers provided.)	4/22
	Are You Ready? I can multiply complex numbers. (Required, complete after you have practiced.)	
	I can simplify complex expressions. (Practice, do as many as you wish. Answers provided.)	4/23
	Are You Ready? I can simplify complex expressions. (Required, complete after you have practiced.)	
	N-CN.2 Standard Assessment (Required, complete after you are ready.)	4/24
2	I can solve quadratic equations that have complex solutions. (Day 1) (Practice)	4/27
	Are You Ready? I can solve quadratic equations...(Day 1) (Required)	
	I can solve quadratic equations that have complex solutions. (Day 2) (Practice)	4/28
	Are You Ready? I can solve quadratic equations...(Day 2) (Required)	
	I can solve quadratic equations that have complex solutions. (Day 3) (Practice)	4/29
	Are You Ready? I can solve quadratic equations...(Day 3) (Required)	
	N-CN.7 Standard Assessment (Required)	4/30
	I can graph equations on coordinate axes with labels and scales. (Practice)	5/1
	Are You Ready? I can I can graph equations on coordinate axes... (Required)	

INSTRUCTION

I can solve quadratic equations that have complex solutions. (Roots)

A quadratic equation missing the linear term is easy to solve using Algebra. For example, $4x^2 - 5 = 11$.

$4x^2 - 5 = 11$	Add 5
$4x^2 = 16$	Divide by 4
$x^2 = 4$	Square root
$x = \pm 2$	Final answer

Don't forget that you get the plus/minus when taking the root since $2^2 = 4$ and $(-2)^2 = 4$.

I can solve quadratic equations that have complex solutions. (Complete the Square)

Whenever the linear coefficient is an even multiple of the quadratic coefficient, as in $3x^2 - 9x + 7 = 0$, completing the square is often easier than factoring or the quadratic formula. The simplest such case is when the a -value is 1. The goal when completing the square is to get the problem to the point when it can be solved using Algebra.

$x^2 - 8x + 5 = 0$	Subtract 5
$x^2 - 8x = -5$	Write the skeleton
$(x \quad)^2 = -5$	Place half of the linear coefficient
$(x - 4)^2 = -5$	Add the fix-it value
$(x - 4)^2 = -5 + 16$	Combine like terms
$(x - 4)^2 = 11$	Square root
$x - 4 = \pm\sqrt{11}$	Add 4
$x = 4 \pm \sqrt{11}$	Final answer

Notice that the value of the quantity squared, $(x - 4)^2 = x^2 - 8x + 16$, does not equal the value $x^2 - 8x$. Forcing the expression into a quantity squared results in the 16 to appear out of thin air, thereby breaking the equals sign. We must fix that! Adding 16 to the right-hand side makes the equation balanced, which is why it is called the fix-it value.

I can solve quadratic equations that have complex solutions. (Quadratic Formula)

The quadratic formula is the sharpest knife in the drawer—it will work on every type of problem, but it is very easy to make a mistake—the knife will cut everything...even you! To help avoid mistakes, be sure to write out the values of the a , b , and c coefficients. Be very methodical about simplifying and don't skip any steps or take any shortcuts.

$3x^2 - 4x + 7 = 0$	List coefficients
$a = 3, b = -4, c = 7$	Set up the quadratic formula
$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(3)(7)}}{2(3)}$	Simplify the square
$x = \frac{-(-4) \pm \sqrt{16 - 4(3)(7)}}{2(3)}$	Simplify the product in the radical
$x = \frac{-(-4) \pm \sqrt{16 - 84}}{2(3)}$	Combine like terms
$x = \frac{-(-4) \pm \sqrt{-68}}{2(3)}$	Simplify the radical ($68 = 4 \cdot 17$)
$x = \frac{-(-4) \pm 2i\sqrt{17}}{2(3)}$	Simplify the numerator

INSTRUCTION

$$x = \frac{4 \pm 2i\sqrt{17}}{2(3)}$$

Simplify the denominator

$$x = \frac{4 \pm 2i\sqrt{17}}{6}$$

Reduce the fraction

$$x = \frac{2 \pm i\sqrt{17}}{3}$$

Final answer

I can graph equations on coordinate axes with labels and scales.

Graphing quadratics requires 5 points—vertex, x -intercepts, y -intercept and its reflection across the Axis of Symmetry. How you get those points depends on the quadratic's form.

	Standard $f(x) = ax^2 + bx + c$	Vertex $f(x) = a(x - h)^2 + k$	Factored $f(x) = a(x - p)(x - q)$
vertex	complete the square or $\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$	(h, k)	$\left(\frac{p+q}{2}, f\left(\frac{p+q}{2}\right)\right)$
x-intercepts	Solve by factoring or complete the square or quadratic formula	solve $f(x) = 0$	$(p, 0), (q, 0)$
y-intercept	$(0, c)$	$(0, ah^2 + k)$	$(0, apq)$
reflection	$\left(\frac{-b}{a}, c\right)$	$(2h, ah^2 + k)$	$(p + q, apq)$

I can solve quadratic equations that have complex solutions. (Day 1)

Solve each equation by taking square roots.

1) $r^2 + 5 = -7$

2) $m^2 - 8 = -12$

3) $7x^2 = -63$

4) $x^2 - 10 = -11$

5) $4x^2 = -36$

6) $a^2 + 9 = -5$

7) $-6x^2 = 96$

8) $v^2 + 7 = 6$

9) $-6 - 9n^2 = -154$

10) $4x^2 + 3 = -77$

11) $10 - 5n^2 = -67$

12) $9a^2 - 10 = -104$

13) $7n^2 - 8 = -71$

14) $10a^2 + 6 = -27$

15) $4x^2 - 1 = -60$

16) $-7 - 9x^2 = -178$

17) $-2 - 9x^2 = -128$

18) $6n^2 + 1 = -82$

19) $4m^2 + 8 = -6$

20) $8p^2 - 8 = -138$

I can solve quadratic equations that have complex solutions. (Day 2)

Solve each equation by completing the square.

1) $x^2 + 4x - 90 = -10$

2) $x^2 + 16x + 90 = -5$

3) $6p^2 + 12p - 24 = -6$

4) $a^2 - 10a + 29 = -6$

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

6) $k^2 + 16k - 70 = -6$

7) $2a^2 - 16a + 79 = -2$

8) $8x^2 - 16x - 22 = 2$

9) $5x^2 + 20x + 65 = -2$

10) $n^2 - 6n + 76 = -3$

11) $4a^2 + 16a = 9$

12) $5v^2 + 20v + 46 = -9$

13) $m^2 + 4m - 69 = 4$

14) $7v^2 - 14v + 26 = -7$

15) $7b^2 - 14b + 67 = 2$

16) $n^2 + 16n + 85 = -5$

17) $5n^2 + 20n + 87 = 10$

18) $b^2 + 2b + 74 = -7$

19) $n^2 + 12n + 57 = -5$

20) $n^2 + 18n + 78 = -5$

I can solve quadratic equations that have complex solutions. (Day 3)

Solve each equation with the quadratic formula.

1) $6r^2 + 9 = 7r$

2) $4r^2 - 2r = -10$

3) $5n^2 = -7 - 4n$

4) $-10v^2 - 8v = 9$

5) $8m^2 + 11 = 5m$

6) $-8n^2 + 11n = 5$

7) $-11b^2 - 1 = -4b$

8) $-11p^2 + 6p = 8$

9) $-9x^2 = -x + 4$

10) $3v^2 - 8v = -11$

11) $-9p^2 - 2 = 8p$

12) $9a^2 = -9 + 4a$

13) $11m^2 = -11 - 9m$

14) $9x^2 + 1 = 2x$

15) $-12x^2 = 5x + 5$

16) $-12m^2 = 11m + 6$

17) $6m^2 + 11m = -8$

18) $-12v^2 - 8 = -9v$

19) $10a^2 = 11a - 5$

20) $9b^2 + 9 = -9b$

I can graph equations on coordinate axes with labels and scales.

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Sketch the graph of each function.

1) $y = -x^2 - 8x - 15$

2) $y = x^2 - 6x + 13$

3) $y = x^2 - 2x + 5$

4) $y = -3x^2 + 24x - 49$

5) $y = -2x^2 - 4x - 4$

6) $y = -x^2 + 4x - 7$

7) $y = -x^2 + 4x - 2$

8) $y = 2x^2 + 8x + 5$

9) $y = -2x^2 - 8x - 6$

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

11) $y = -(x - 1)^2 - 3$

12) $y = -(x + 4)^2 - 2$

13) $y = -2(x + 1)^2 + 3$

14) $y = -2(x + 2)^2 + 1$

15) $y = 2(x - 2)^2 - 2$

16) $y = 4(x + 4)^2 + 1$

17) $y = (x + 4)^2 + 1$

18) $y = (x - 4)^2 + 2$

19) $y = -2(x + 4)^2 + 1$

20) $y = -3(x - 3)^2 + 3$

I can solve quadratic equations ... (Day 1) SOLUTIONS

- | | | | |
|--|--|--|--|
| 1) $\{2i\sqrt{3}, -2i\sqrt{3}\}$ | 2) $\{2i, -2i\}$ | 3) $\{3i, -3i\}$ | 4) $\{i, -i\}$ |
| 5) $\{3i, -3i\}$ | 6) $\{i\sqrt{14}, -i\sqrt{14}\}$ | 7) $\{4i, -4i\}$ | 8) $\{i, -i\}$ |
| 9) $\left\{\frac{2\sqrt{37}}{3}, -\frac{2\sqrt{37}}{3}\right\}$ | 10) $\{2i\sqrt{5}, -2i\sqrt{5}\}$ | 11) $\left\{\frac{\sqrt{385}}{5}, -\frac{\sqrt{385}}{5}\right\}$ | 12) $\left\{\frac{i\sqrt{94}}{3}, -\frac{i\sqrt{94}}{3}\right\}$ |
| 13) $\{3i, -3i\}$ | 14) $\left\{\frac{i\sqrt{330}}{10}, -\frac{i\sqrt{330}}{10}\right\}$ | 15) $\left\{\frac{i\sqrt{59}}{2}, -\frac{i\sqrt{59}}{2}\right\}$ | |
| 16) $\{\sqrt{19}, -\sqrt{19}\}$ | 17) $\{\sqrt{14}, -\sqrt{14}\}$ | 18) $\left\{\frac{i\sqrt{498}}{6}, -\frac{i\sqrt{498}}{6}\right\}$ | |
| 19) $\left\{\frac{i\sqrt{14}}{2}, -\frac{i\sqrt{14}}{2}\right\}$ | 20) $\left\{\frac{i\sqrt{65}}{2}, -\frac{i\sqrt{65}}{2}\right\}$ | | |

I can solve quadratic equations... (Day 2) SOLUTIONS

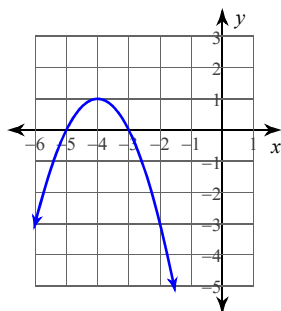
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|---|---|--|
| 1) $\{-2 + 2\sqrt{21}, -2 - 2\sqrt{21}\}$ | 2) $\{-8 + i\sqrt{31}, -8 - i\sqrt{31}\}$ | 3) $\{1, -3\}$ |
| 4) $\{5 + i\sqrt{10}, 5 - i\sqrt{10}\}$ | 5) $\{-6 + \sqrt{31}, -6 - \sqrt{31}\}$ | 6) $\{-8 + 8\sqrt{2}, -8 - 8\sqrt{2}\}$ |
| 7) $\left\{\frac{8 + 7i\sqrt{2}}{2}, \frac{8 - 7i\sqrt{2}}{2}\right\}$ | 8) $\{3, -1\}$ | |
| 9) $\left\{\frac{-10 + i\sqrt{235}}{5}, \frac{-10 - i\sqrt{235}}{5}\right\}$ | 10) $\{3 + i\sqrt{70}, 3 - i\sqrt{70}\}$ | |
| 11) $\left\{\frac{1}{2}, -\frac{9}{2}\right\}$ | 12) $\{-2 + i\sqrt{7}, -2 - i\sqrt{7}\}$ | 13) $\{-2 + \sqrt{77}, -2 - \sqrt{77}\}$ |
| 14) $\left\{\frac{7 + i\sqrt{182}}{7}, \frac{7 - i\sqrt{182}}{7}\right\}$ | 15) $\left\{\frac{7 + i\sqrt{406}}{7}, \frac{7 - i\sqrt{406}}{7}\right\}$ | 16) $\{-8 + i\sqrt{26}, -8 - i\sqrt{26}\}$ |
| 17) $\left\{\frac{-10 + i\sqrt{285}}{5}, \frac{-10 - i\sqrt{285}}{5}\right\}$ | 18) $\{-1 + 4i\sqrt{5}, -1 - 4i\sqrt{5}\}$ | |
| 19) $\{-6 + i\sqrt{26}, -6 - i\sqrt{26}\}$ | 20) $\{-9 + i\sqrt{2}, -9 - i\sqrt{2}\}$ | |

I can solve quadratic equations... (Day 3) SOLUTIONS

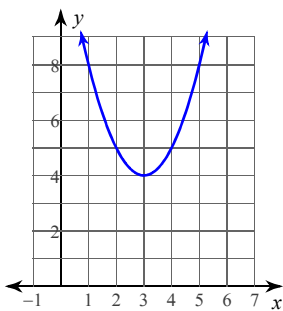
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|---|---|---|
| 1) $\left\{\frac{7 + i\sqrt{167}}{12}, \frac{7 - i\sqrt{167}}{12}\right\}$ | 2) $\left\{\frac{1 + i\sqrt{39}}{4}, \frac{1 - i\sqrt{39}}{4}\right\}$ | 3) $\left\{\frac{-2 + i\sqrt{31}}{5}, \frac{-2 - i\sqrt{31}}{5}\right\}$ |
| 4) $\left\{\frac{-4 - i\sqrt{74}}{10}, \frac{-4 + i\sqrt{74}}{10}\right\}$ | 5) $\left\{\frac{5 + i\sqrt{327}}{16}, \frac{5 - i\sqrt{327}}{16}\right\}$ | 6) $\left\{\frac{11 - i\sqrt{39}}{16}, \frac{11 + i\sqrt{39}}{16}\right\}$ |
| 7) $\left\{\frac{2 - i\sqrt{7}}{11}, \frac{2 + i\sqrt{7}}{11}\right\}$ | 8) $\left\{\frac{3 - i\sqrt{79}}{11}, \frac{3 + i\sqrt{79}}{11}\right\}$ | 9) $\left\{\frac{1 - i\sqrt{143}}{18}, \frac{1 + i\sqrt{143}}{18}\right\}$ |
| 10) $\left\{\frac{4 + i\sqrt{17}}{3}, \frac{4 - i\sqrt{17}}{3}\right\}$ | 11) $\left\{\frac{-4 - i\sqrt{2}}{9}, \frac{-4 + i\sqrt{2}}{9}\right\}$ | 12) $\left\{\frac{2 + i\sqrt{77}}{9}, \frac{2 - i\sqrt{77}}{9}\right\}$ |
| 13) $\left\{\frac{-9 + i\sqrt{403}}{22}, \frac{-9 - i\sqrt{403}}{22}\right\}$ | 14) $\left\{\frac{1 + 2i\sqrt{2}}{9}, \frac{1 - 2i\sqrt{2}}{9}\right\}$ | 15) $\left\{\frac{-5 - i\sqrt{215}}{24}, \frac{-5 + i\sqrt{215}}{24}\right\}$ |
| 16) $\left\{\frac{-11 - i\sqrt{167}}{24}, \frac{-11 + i\sqrt{167}}{24}\right\}$ | 17) $\left\{\frac{-11 + i\sqrt{71}}{12}, \frac{-11 - i\sqrt{71}}{12}\right\}$ | |
| 18) $\left\{\frac{9 - i\sqrt{303}}{24}, \frac{9 + i\sqrt{303}}{24}\right\}$ | 19) $\left\{\frac{11 + i\sqrt{79}}{20}, \frac{11 - i\sqrt{79}}{20}\right\}$ | 20) $\left\{\frac{-1 + i\sqrt{3}}{2}, \frac{-1 - i\sqrt{3}}{2}\right\}$ |

Answers to I can graph equations on coordinate axes with labels and scales.

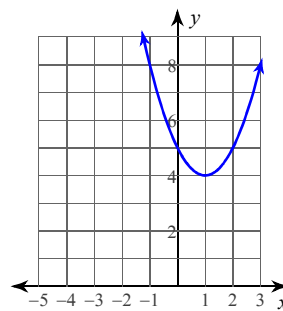
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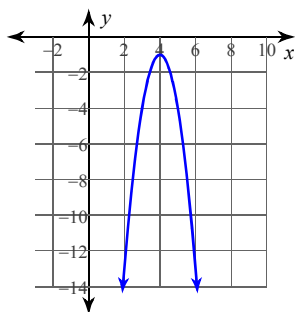
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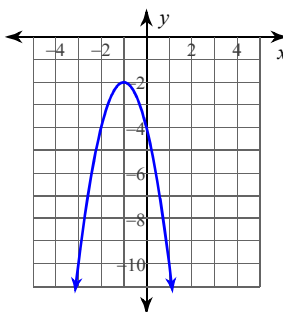
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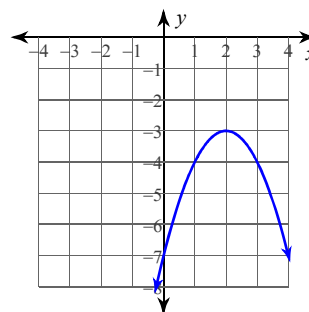
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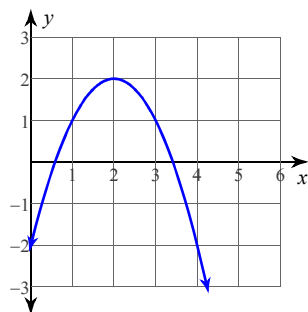
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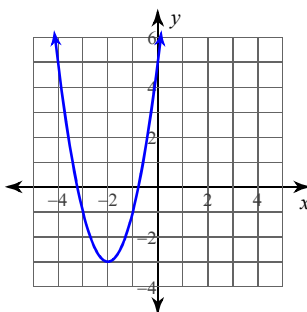
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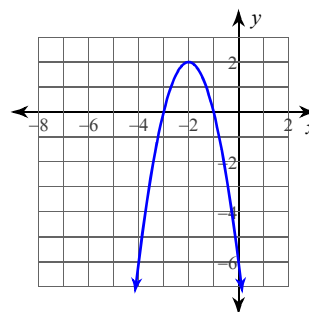
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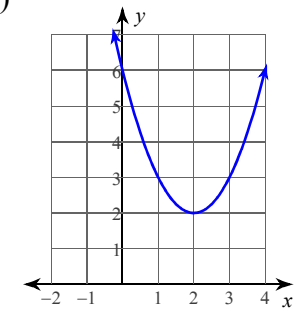
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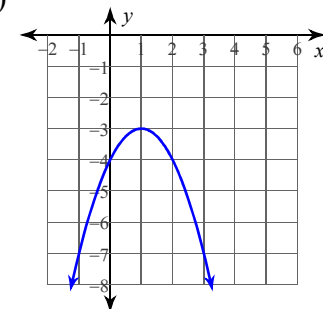
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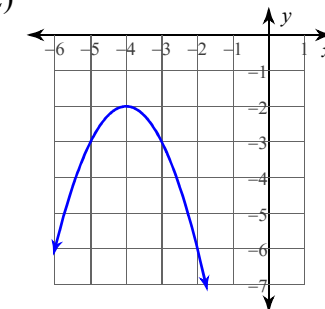
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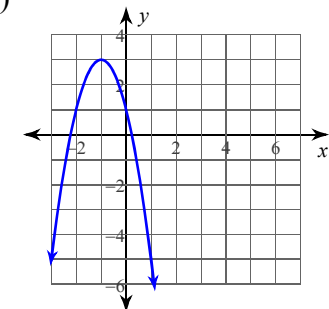
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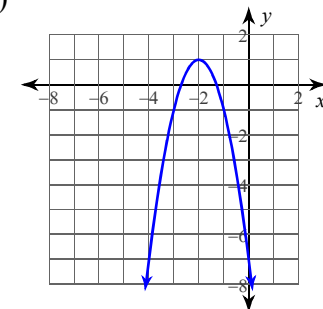
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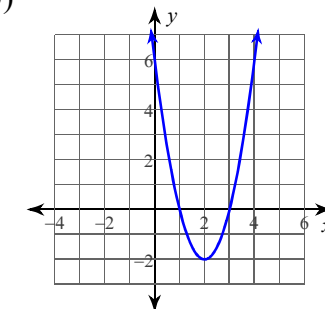
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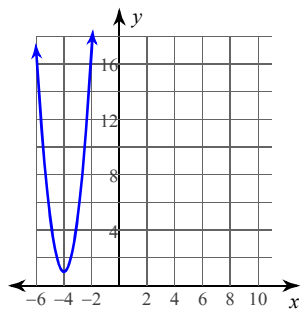
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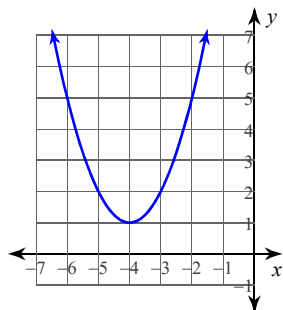
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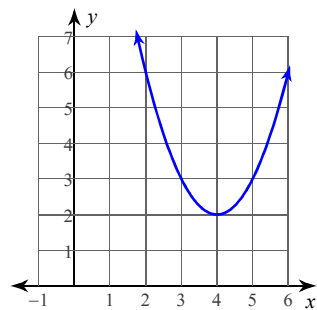
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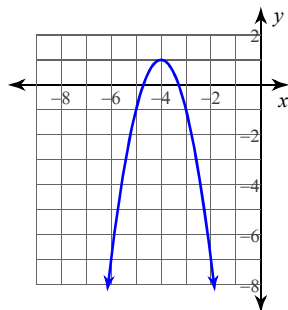
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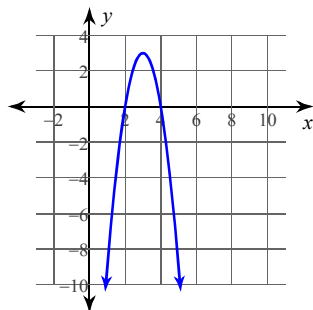
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<p>Are You Ready? I can solve quadratic equations that have complex solutions. (Day 1 - Roots)</p> <ol style="list-style-type: none"> Solve. $3x^2 = 6$ Solve. $x^2 + 3 = -8$ Solve. $6x^2 - 4 = -44$ Solve. $2x^2 + 9 = -31$ Solve. $8x^2 + 3 = -71$ Solve. $3x^3 - 3 = -24$ 	<p>Are You Ready? I can solve quadratic equations that have complex solutions. (Day 2 - Complete the Square)</p> <ol style="list-style-type: none"> Solve. $x^2 + 6x + 78 = 8$ Solve. $x^2 - 14x + 55 = -3$ Solve. $x^2 - 4x + 47 = -3$ Solve. $x^2 + 12x + 56 = 5$ Solve. $x^2 + 14x + 61 = 6$ Solve. $x^2 + 4x + 28 = 2$
<p>Are You Ready? I can solve quadratic equations that have complex solutions. (Day 3 - Quadratic Formula)</p> <ol style="list-style-type: none"> Solve. $-4x^2 = 10 - 2x$ Solve. $-7x^2 - 6 = 3x$ Solve. $3x^2 - 3x = -10$ Solve. $2x^2 + 10 = -8x$ Solve. $9x^2 + 2 = -8x$ Solve. $12x^2 = 7x - 7$ 	<p>Are You Ready? I can graph equations on coordinate axes with labels and scales.</p> <ol style="list-style-type: none"> Graph the following function. $y = x^2 - 6x + 8$ Graph the following function. $y = -x^2 + 4x - 1$ Graph the following function. $y = x^2 + 4x + 1$ Graph the following function. $y = \frac{1}{2}(x - 4)^2 + 1$ Graph the following function. $y = -2(x + 3)^2 - 3$ Graph the following function. $y = (x - 4)^2 - 2$

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Algebra 2 U2

N-CN.7 Standard Assessment

1. Solve. $10x^2 + 2 = -49$

2. Explain your reasoning for Question 1.

3. Solve. $7x^2 - 9 = -43$

4. Explain your reasoning for Question 3.

5. Solve. $x^2 - 6x + 63 = 8$

6. Explain your reasoning for Question 5.

7. Solve. $x^2 + 14x + 61 = 5$

8. Explain your reasoning for Question 7.

9. Solve. $6x^2 - 12x = -10$

10. Explain your reasoning for Question 9.

11. Solve. $11x^2 - 5x = -11$

12. Explain your reasoning for Question 11.