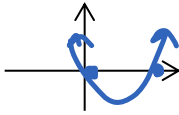


3 - 4 Solving Quadratic Equations by Quadratic Formula (Day 3)

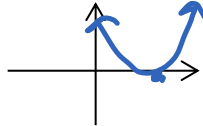
<p>Quadratic Formula:</p> $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	<p>Discriminant:</p> $D = b^2 - 4ac$
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Draw a parabola for a quadratic equation that meets the following conditions:

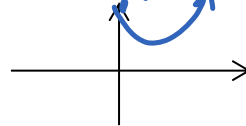
2 Solutions



1 Solution



No real solutions



$$D = b^2 - 4ac$$

$$D > 0 \quad D = 0 \quad D < 0$$

Evaluate the discriminant for each equation. Determine the number of real solutions.

1.) $-8x^2 + 3x + 1 = 0$

$a = -8 \quad b = 3 \quad c = 1$

$D = b^2 - 4ac$

$D = (3)^2 - 4(-8)(1)$

$D = 41$

2 Real Solutions

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

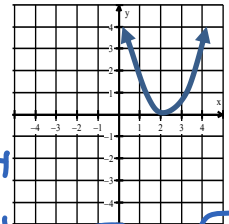
$x^2 - 4x + 4 = 0$

$a = 1 \quad b = -4 \quad c = 4$

$D = b^2 - 4ac$

$D = (-4)^2 - 4(1)(4) = 0$

1 Real Sol.



Five methods for solving quadratic equations:

1. Square Roots $b = 0$
2. Completing the square $a = 1, b$ is even
3. Quadratic Formula (anytime)
4. Factoring
5. Graphing

Simplify all radicals in solutions.

1. Solve $x^2 = 16x - 63$

$-16x + 63 \quad -16x + 63$

$x^2 - 16x + 63 = 0$
 $(x - 9)(x - 7) = 0$

$x - 9 = 0$
 $x = 9$

$x - 7 = 0$
 $x = 7$

2. Solve $x^2 - 10x + 35 = 0$

$x^2 - 10x + 35 = 0$
 $x^2 - 10x + 25 = -10$
 $(x - 5)^2 = -10$
 $x - 5 = \pm \sqrt{-10}$
 $x = 5 \pm \sqrt{10}i$

$x = 5 \pm 3i\sqrt{5}$

3. Solve $2x^2 - 5x + 11 = -1$

$2x^2 - 5x + 11 = 0$
 $a = 2 \quad b = -5 \quad c = 11$
 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(2)(11)}}{2(2)}$

$x = \frac{5 \pm \sqrt{-63}}{4}$
 $x = \frac{5 \pm 3i\sqrt{7}}{4}$

3.4 Quadratic Formula (Day 3)

Name _____

1. Solve $x^2 = 15x - 54$

2. Solve $x^2 - 13 = 7$

3. Solve $x^2 + 3x - 3 = 0$

4. Solve $4x^2 + 5x + 1 = -2$

5. Solve $2x^2 + 6x + 2 = 1$

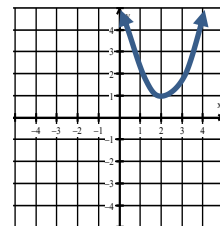
6. Solve $x^2 + 2x + 7 = 0$

Evaluate the discriminant for each equation. Determine the number of real solutions.

7.) $3x^2 - 12x + 12 = 0$

8.) $x^2 - 2x = -3$

9.)



3 – 4 Solving Quadratic Equations by Quadratic Formula (Day 3)

Evaluate the discriminant for each equation. Determine the number of real solutions.

1.) $-3x^2 + 5x + 2 = 0$

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

Warm-UP:

Solve $x^2 - 6x - 18 = 0$.