

Algebra I
 Day 9 - Solving by Quadratic Formula
 Practice Assignment

Unit 9 - Quadratic Equations

Name: Key

Directions: Find the discriminant and tell the number of solutions. Then solve each of the following equations using the Quadratic Formula.

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

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

$$\begin{aligned} \textcircled{1} b^2 - 4ac & \\ &= (4)^2 - 4(1)(-2) \\ &= 24 \end{aligned}$$

Discriminant: 24
 # of Solutions: 2
 $x = -2 \pm \sqrt{6}$

$$\begin{aligned} \textcircled{2} x &= \frac{-b \pm \sqrt{24}}{2a} = \frac{-4 \pm \sqrt{24}}{2(1)} = \frac{-4 \pm 2\sqrt{6}}{2} \\ &= -2 \pm \sqrt{6} \end{aligned}$$

2. $4x^2 - 8x + 3 = 0$

$$\begin{aligned} \textcircled{1} b^2 - 4ac & \\ &= (-8)^2 - 4(4)(3) \\ &= 16 \end{aligned}$$

Discriminant: 16
 # of Solutions: 2
 $x = \frac{1}{2}, x = \frac{3}{2}$

$$\textcircled{2} x = \frac{-b \pm \sqrt{16}}{2a} = \frac{8 \pm \sqrt{16}}{2(4)} = \frac{8 \pm 4}{8}$$

$$\frac{8+4}{8} = \frac{12}{8} = \frac{3}{2} \quad \frac{8-4}{8} = \frac{4}{8} = \frac{1}{2}$$

$$\begin{aligned} 3. 5x^2 - 10x + 18 &= 13 \\ -13 &-13 \\ \hline 5x^2 - 10x + 5 &= 0 \end{aligned}$$

$$\begin{aligned} \textcircled{1} b^2 - 4ac & \\ &= (-10)^2 - 4(5)(5) \\ &= 0 \end{aligned}$$

Discriminant: 0
 # of Solutions: 1
 $x = 1$

$$\textcircled{2} x = \frac{-b \pm \sqrt{0}}{2a} = \frac{10 \pm \sqrt{0}}{2(5)} = \frac{10}{10} = 1$$

4. $6x^2 = -4x - 10$

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

$$\begin{aligned} \textcircled{1} b^2 - 4ac & \\ &= (4)^2 - 4(6)(10) \\ &= -224 \end{aligned}$$

Discriminant: -224
 # of Solutions: none
 $x = \text{No Solution}$