

Foundations of Math 2
 Unit 7 - Solving More Quadratic Equations
 Lesson 2 → Quadratic Formula PRACTICE

Name: _____
 Date: _____ Pd: _____

<p>1. $4x^2 + 11x - 20 = 0$</p> <p>$x =$ _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>	<p>$A=1 \ B=-3 \ C=-3$ $2. \ x^2 - 3x - 3 = 0$ $\frac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(-3)}}{2(1)}$ $\frac{3 \pm \sqrt{21}}{2}$</p> <p>$x =$ _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>
<p>$A=1 \ B=1 \ C=-1$ $3. \ x^2 + x - 1 = 0$ $\frac{-(1) \pm \sqrt{(1)^2 - 4(1)(-1)}}{2(1)}$ $\frac{-1 \pm \sqrt{5}}{2}$</p> <p>$x =$ _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>	<p>$A \ B \ C$ $4. \ 4x^2 + 6x - 1 = 0$ $\frac{-(-6) \pm \sqrt{(-6)^2 - 4(4)(-1)}}{2(4)}$ $\frac{-6 \pm \sqrt{52}}{8} = \frac{-6 \pm 2\sqrt{13}}{8} = \frac{-3 \pm \sqrt{13}}{4}$</p> <p>$x =$ _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>
<p>$5. \ x^2 + 3x - 10 = 0$ $(x+5)(x-2) = 0$ $x = -5 \ x = 2$ $\frac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(-10)}}{2(1)}$ $\frac{-3 \pm \sqrt{49}}{2} = \frac{-3 \pm 7}{2}$ $\frac{-3+7}{2} = \frac{4}{2} = 2$ $\frac{-3-7}{2} = \frac{-10}{2} = -5$ $\boxed{2, -5}$</p> <p>$x =$ _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>	<p>$6. \ 5x^2 + 3x + 1 = 0$ $\frac{-(-3) \pm \sqrt{(-3)^2 - 4(5)(1)}}{2(5)} = \frac{-3 \pm \sqrt{-11}}{10}$ $\frac{-3 \pm i\sqrt{11}}{10}$</p> <p>$x =$ _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>
<p>$7. \ 5x^2 + 50x + 125 = 0$ $5(x^2 + 10x + 25) = 0$ $5(x+5)(x+5) = 0$ $\boxed{x = -5}$ or _____ $\frac{-(-50) \pm \sqrt{(-50)^2 - 4(5)(125)}}{2(5)} = \frac{50 \pm 0}{10}$ $= \frac{50}{10} = \boxed{-5}$</p> <p>$x =$ _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>	<p>$8. \ 2x^2 + 18x + 39 = 0$ $A=2 \ B=18 \ C=39$ $\frac{-(-18) \pm \sqrt{(-18)^2 - 4(2)(39)}}{2(2)}$ $= \frac{-18 \pm \sqrt{12}}{4} = \frac{-18 \pm 2\sqrt{3}}{4}$ $\frac{-9 \pm \sqrt{3}}{2}$</p> <p>$x =$ _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>

➤ Ways to solve quadratic equations in standard for $(ax^2 + bx + c = 0)$:

FACTORING:	COMPLETING the SQUARE:	QUADRATIC FORMULA
$x^2 - 7x + 12 = 0$	$x^2 - 6x + 12 = 0$	$x^2 - 6x + 12 = 0$ (this is what we will learn today)
$x =$ _____	$x =$ _____	

- The Quadratic Formula is used to solve any quadratic equation, especially those that will not factor.

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

- Examples: Solve using the Quadratic Formula

<p>1. $x^2 - 5x - 24 = 0$ $(x-8)(x+3)=0$ $8, -3$</p>	<p>2. $x^2 + 5x + 5 = 0$ $\frac{-5 \pm \sqrt{5}}{2}$</p>
<p>3. $4x^2 + 8x - 1 = 0$ $\frac{-8 \pm \sqrt{80}}{8}$ $\frac{-8 \pm 4\sqrt{5}}{8} = \frac{-2 \pm \sqrt{5}}{2}$</p>	<p>4. $4x^2 + 11x - 20 = 0$ $\frac{-11 \pm \sqrt{441}}{8} = \frac{-11 \pm 21}{8}$ $\frac{-11+21}{8} = \frac{5}{4}$ $\frac{-11-21}{8} = -4$ $x^2 + 11x - 80$ or $(x + \frac{16}{4})(x - \frac{5}{4})$ $(x+4)(4x-5)$ $x = -4$ $x = \frac{5}{4}$</p>
<p>5. $x^2 - 10x = -25$ $x^2 - 10x + 25 = 0$ $(x-5)(x-5) = 0$ $x = 5$</p>	<p>6. $x^2 + 2x + 4 = 0$ $\frac{-2 \pm \sqrt{-12}}{2}$ $\frac{-2 \pm 2i\sqrt{3}}{2} = -1 \pm i\sqrt{3}$</p>