

$$2-8-4\sqrt{5} 5$$

3. $x^2 + 12x + 43 = 0$

$$\frac{-12 \pm \sqrt{144 - 4(1)(43)}}{2(1)} = \frac{-12 \pm \sqrt{-28}}{2}$$

$$\frac{-12 \pm 2i\sqrt{7}}{2} = -6 \pm i\sqrt{7}$$

$$x = \left\{ \begin{array}{l} -6 + i\sqrt{7} \\ -6 - i\sqrt{7} \end{array} \right\}$$

4. $x^2 - 2x - 15 = 0$

$$(x-5)(x+3) = 0$$

$$x = 5 \quad x = -3$$

$$\frac{2 \pm \sqrt{4 - 4(1)(-15)}}{2} = \frac{2 \pm \sqrt{64}}{2}$$

$$\frac{2 \pm 8}{2} = \frac{10}{2} = 5 \quad \frac{-6}{2} = -3$$

- 1) BEGIN with $ax^2 + bx + c = 0$ and MULTIPLY "a" to "c"
- 2) REWRITE $x^2 + bx = -c \cdot a$
- 3) $x^2 + bx + \underline{\hspace{2cm}} = -c \cdot a + \underline{\hspace{2cm}}$
- 4) COMPLETE THE SQUARE by taking half of b ; square it and ADD IT TO BOTH SIDES of the equation in the blanks.
- 5) FACTOR the perfect square trinomial.
- 6) Take the SQUARE ROOT of both sides. Don't forget to include a \pm to create 2 solutions.
- 7) SOLVE both equations. SIMPLIFY all irrational and complex solutions.
- 8) DIVIDE by "a" and REDUCE all final solutions.

5. $3x^2 + 10x - 8 = 0$

$$\frac{-10 \pm \sqrt{100 - 4(3)(-8)}}{6} = \frac{-10 \pm \sqrt{196}}{6}$$

$$\frac{-10 \pm 14}{6} \rightarrow \begin{cases} \frac{-10+14}{6} = \frac{4}{6} = \frac{2}{3} \\ \frac{-10-14}{6} = -4 \end{cases}$$

6. $4x^2 - 8x + 3 = 0$

$$\frac{8 \pm \sqrt{64 - 4(4)(3)}}{8} = \frac{8 \pm \sqrt{16}}{8}$$

$$\frac{8 \pm 4}{8} = \begin{cases} \frac{12}{8} = \frac{3}{2} \\ \frac{4}{8} = \frac{1}{2} \end{cases}$$

7. $4x^2 - 16x + 71 = 0$

$$\frac{16 \pm \sqrt{256 - 4(4)(71)}}{8}$$

$$\frac{16 \pm \sqrt{-880}}{8}$$

$$\frac{16 \pm 4i\sqrt{55}}{8} = \frac{4 \pm i\sqrt{55}}{2}$$

8. $2x^2 + 5x - 4 = 0$

$$\frac{-5 \pm \sqrt{25 - 4(2)(-4)}}{4}$$

$$= \frac{-5 \pm \sqrt{57}}{4}$$

$$x = \left\{ \frac{4 + i\sqrt{55}}{2}, \frac{4 - i\sqrt{55}}{2} \right\}$$

Complete pg. 19 + 20
+ Budo pg. 16 #7

Foundations of Math 2
Unit 7 - Solving More Quadratic Equations
QUIZ REVIEW PROBLEMS

Name: _____
Date: _____ Pd: _____

$$x = \frac{3}{4}, -\frac{1}{2}$$

Solve by factoring.

1.) $x^2 - 64 = 0$

$$(x-8)(x+8) = 0$$

$$x = \pm 8$$

$$x = 8, -8$$

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

$$x^2 - 2x - 24 = 0$$

$$(x-6)(x+4) = 0$$

$$(x-\frac{3}{4})(x+\frac{1}{2}) = 0$$

$$(4x-3)(2x+1) = 0$$

3.) $x^2 + 3x - 40 = 0$

$$(x+8)(x-5) = 0$$

$$x = -8, 5$$

4.) $2x^2 + 3x + 1 = 0$

$$x^2 + 3x + 2 = 0$$

$$(x+2)(x+1) = 0$$

$$(x+1)(2x+1) = 0$$

$$x = -1, -\frac{1}{2}$$

5.) $4x^2 - 8x = 0$

$$4x(x-2) = 0$$

$$x = 0, 2$$

6.) $x^2 + 5x - 14 = 0$

$$(x+7)(x-2) = 0$$

$$x = -7, 2$$

Solve by square roots.

7.) $x^2 = 81$

$$x^2 - 81 = 0$$

$$(x+9)(x-9) = 0$$

$$x = \pm 9$$

8.) $(4x-3)^2 = 25$

$$8(x-2)(2x+1) = 0$$

$$x = 2, -\frac{1}{2}$$

$$(4x-3)(4x-3) - 25 = 0$$

$$16x^2 - 24x + 9 - 25 = 0$$

$$16x^2 - 24x - 16 = 0$$

$$8(2x^2 - 3x - 2) = 0$$

$$8(x^2 - 3x - 4) = 0$$

$$8(x-4)(x+1) = 0$$

9.) $x^2 = 17$

$$x^2 - 17 = 0$$

$$\pm \frac{\sqrt{-4(1)(-17)}}{2}$$

$$\pm \frac{\sqrt{68}}{2} = \pm \frac{2\sqrt{17}}{2}$$

$$\pm \sqrt{17}$$

10.) $(x-5)^2 = 45$

$$x^2 - 10x + 25 - 45 = 0$$

$$x^2 - 10x - 20 = 0$$

$$\frac{10 \pm \sqrt{100 + 80}}{2} = \frac{10 \pm \sqrt{180}}{2}$$

$$\frac{10 \pm 6\sqrt{5}}{2} = 5 \pm 3\sqrt{5}$$

$$x = 5 + 3\sqrt{5}, 5 - 3\sqrt{5}$$

Solve by completing the square.

11.) $x^2 - 2x - 3 = 0$

$$(x-3)(x+1) = 0$$

$$x = 3, x = -1$$

12.) $x^2 + 2x - 14 = 0$

$$\frac{-2 \pm \sqrt{(2)^2 - 4(1)(-14)}}{2(1)} = \frac{-2 \pm \sqrt{60}}{2}$$

$$\frac{-2 \pm 2\sqrt{15}}{2} = -1 \pm \sqrt{15}$$

$$x = -1 + \sqrt{15}, -1 - \sqrt{15}$$

Solve using the quadratic formula.

<p>13. $2x^2 + 5x + 3 = 0$ $x^2 + 5x + 6 = 0$ $(x+2)(x+3) = 0$ $(x+1)(2x+3) = 0$ $x = -1, -3/2$</p> <p>x = _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>	<p>14. $2x^2 + x - 6 = 0$ $x^2 + x - 12 = 0$ $(x+4)(x-3) = 0$ $(x+2)(2x-3) = 0$ $x = -2, 3/2$</p> <p>x = _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>
<p>15. $3x^2 - 2x - 5 = 0$ $x^2 - 2x - 15 = 0$ $(x-5)(x+3) = 0$ $(3x-5)(x+1) = 0$ $x = 5/3, -1$</p> <p>x = _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>	<p>16. $x^2 - 2x - 5 = 0$ $\frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-5)}}{2(1)}$ $\frac{2 \pm \sqrt{24}}{2}$ $\frac{2 \pm 2\sqrt{6}}{2} = 1 \pm \sqrt{6}$ $x = 1 + \sqrt{6}, 1 - \sqrt{6}$</p> <p>x = _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>
<p>17. $2x^2 - 6x - 9 = 0$ $\frac{-(-6) \pm \sqrt{(-6)^2 - 4(2)(-9)}}{2(2)}$ $\frac{6 \pm \sqrt{108}}{4}$ $\frac{6 \pm 6\sqrt{3}}{4} = \frac{3 \pm 3\sqrt{3}}{2}$ $x = \frac{3+3\sqrt{3}}{2}, \frac{3-3\sqrt{3}}{2}$</p> <p>x = _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>	<p>18. $x^2 - 12x + 36 = 0$ $\frac{-(-12) \pm \sqrt{(-12)^2 - 4(1)(36)}}{2(1)}$ $\frac{12 \pm \sqrt{0}}{2} \quad \frac{12}{2} x = 6$ $x = 6$</p> <p>x = _____</p>	<p>$b^2 - 4ac$</p> <p>$2a$</p>