Name: _____
Period: ____

Warm-up: ***before Quadratic***

Simplify

a. $\frac{\cancel{10}^{2}x+\cancel{35}^{7}}{\cancel{5}}$

$2x+7$

b. $\frac{2x+12}{4}$

$\frac{1}{2}x+3$

c. $\frac{-x+27}{3}$

$-\frac{1}{3}x+9$

d. $\frac{\cancel{14}^{7}-\cancel{2x}^{1}}{\cancel{6}_{3}}$

$=\frac{7-x}{3}$

$=\frac{7}{3}-\frac{1}{3}x$

Simplify

d. $\sqrt{18}$

$\sqrt{2\cdot 3\cdot 3}$

$3\sqrt{2}$

e. $\sqrt{-25}$

$5i$

Simplify the square root ***before*** simplifying the fraction

f. $\frac{-4\pm\sqrt{36}}{2}$

$=\frac{-4\pm 6}{2}$

$=-2\pm 3$

$=-2+3,\ -2-3$

$=1,-5$

g. $\frac{-4\pm\sqrt{-36}}{2}$

$=\frac{-4\pm 6i}{2}$

$=-2\pm 3i$

$=-2+3i,\ -2-3i$

h. $\frac{12\pm\sqrt{18}}{6}$

$=\frac{\cancel{12}^{4}\pm\cancel{3}^{1}\sqrt{2}}{\cancel{6}_{2}}$

$=\frac{4\pm\sqrt{2}}{2}$

$=\frac{4+\sqrt{2}}{2},\ \frac{4-\sqrt{2}}{2}$

Solve.

i. $(x+5)(x-2)=0$

$x+5=0 \quad x-2=0$

$x=-5 \quad x=2$

j. $4x^2+12x=0$

$4x(x+3)=0$

$4x=0 \quad x+3=0$

$x=0 \quad x=-3$

Expanded Form of a quadratic equation: $ax^2 + bx + c = 0$

Quadratic Formula used for solving:

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

You **MUST** memorize this formula ! ! !

Using the Quadratic Formula to solve quadratic equations

1. $x^2 - 3x - 4 = 0$

a = 1

b = -3

c = -4

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(-4)}}{2(1)}$$

$$x = \frac{3 \pm \sqrt{9+16}}{2}$$

$$x = \frac{3 \pm \sqrt{25}}{2}$$

$$x = \frac{3 \pm 5}{2}$$

$$x = \frac{3+5}{2}, \frac{3-5}{2}$$

$$x = 4, -1$$

$x =$ 4, -1

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

a = -1

b = 2

c = 3

$$x = \frac{-(2) \pm \sqrt{(2)^2 - 4(-1)(3)}}{2(-1)}$$

$$x = \frac{-2 \pm \sqrt{16}}{-2}$$

$$x = \frac{-2 \pm 4}{-2}$$

$$x = 1 \mp 2$$

$$x = 1-2, 1+2$$

$x =$ -1, 3

3. $2x^2 - 1 = -4x$

$+4x \quad +4x$

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

a = 2

b = 4

c = -1

$16 + 8$

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

$$x = \frac{-4 \pm \sqrt{24}}{4}$$

$\sqrt{24} = \sqrt{3 \cdot 2 \cdot 2 \cdot 2} = 2\sqrt{6}$

$$x = \frac{\overset{-2}{\cancel{-4}} \pm \overset{1}{\cancel{2}}\sqrt{6}}{2\cancel{4}}$$

$$x = \frac{-2 \pm \sqrt{6}}{2}$$

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

$+x^2 - 4x \quad +x^2 - 4x$

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

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

a = -1

b = 4

c = -1

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

$$x = \frac{-4 \pm \sqrt{12}}{-2}$$

$\sqrt{12}$, $\sqrt{6 \cdot 2}$, $2\sqrt{3}$

$$x = \frac{-4 \pm 2\sqrt{3}}{-2}$$

$x = 2 \pm \sqrt{3}$

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

a =

b =

c =

$x =$

6. $x^2 + 9 = 0$

a =

b =

c =

$x =$

We will finish the notes and work on the assignment next class period

Homework

Page 352: 1, 2, 5, 6, 9, 10, 15, 16, 17, 18, 19, 20, 21