Alg 1B **Name**_____

Use $\sqrt{\ }$ to solve Quadratic Equations **HW: p. 655: 4,8,12,16,20,24,28,30**

Warm-up:

Solve each by factoring:

1. $x^2 - 4 = 0$

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

$x=-2 \quad x=2$

2. $25x^2 = 9$

$25x^2-9=0$

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

$x=-\frac{3}{5} \quad x=\frac{3}{5}$

Find all values of x that make the equation true:

3. $x^2 = 25$

$x=\pm 5$

4. $x^2 = 100$

$x=\pm 10$

Evaluate each radical, using your calculator:

1.) $\pm\sqrt{25}$ ± 5

2.) $\pm\sqrt{-121}$ $\emptyset$

3.) $\pm\sqrt{80}$ ± 8.94

4.) $\pm\sqrt{50}$ ± 7.07

5.) $\pm\sqrt{\frac{9}{16}}$ $\pm\frac{3}{4}$

Solve $ax^2 + c = 0$ equations by taking square roots

When solving quadratics in which the variable exists ONLY in the x^2 term, simply:

- Isolate the x^2
- Take the square root of each side of the equation to "undo" the exponent of 2.
- Remember to put $\pm$ in front of the square root!!
- Round to the nearest hundredth (.01) if needed!
- If the number under the square root is negative, there is <u>no real solution</u>!

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

$x^2=4$

$x=\pm 2$

2.) $x^2 - 25 = 0$

$x^2=25$

$x=\pm 5$

3.) $x^2 - 5 = 4$

$x^2=9$

$x=\pm 3$

4.) $x^2 + 7 = 4$

$\sqrt{x^2} = \sqrt{-3}$

No Real Solution

5.) $25x^2 = 9$

$\sqrt{x^2} = \frac{\sqrt{9}}{\sqrt{25}}$

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

6.) $3x^2 - 108 = 0$

$3x^2 = 108$

$\sqrt{x^2} = \sqrt{36}$

$x = \pm 6$

7.) $x^2 + 4 = 14$

$\sqrt{x^2} = \sqrt{10}$

$x = \pm 3.16$

8.) $3k^2 - 1 = 0$

$3k^2 = 1$

$\sqrt{k^2} = \frac{\sqrt{1}}{\sqrt{3}}$

$k = \pm .58$

9.) $53 = 8 + 9m^2$

$45 = 9m^2$

$\sqrt{5} = \sqrt{m^2}$

$m = \pm 2.24$

10.) $81x^2 = 4$

$\sqrt{x^2} = \frac{\sqrt{4}}{\sqrt{81}}$

$x = \pm\frac{2}{9}$

11.) $4 - k^2 = 4$

$-k^2 = 0$

$\sqrt{k^2} = \sqrt{0}$

$k = 0$

12. $49b^2 + 64 = 0$

$49b^2 = -64$

$\sqrt{b^2} = \sqrt{\frac{-64}{49}}$

No Real Solution