Name: Key
8A; Algebra 1

Date:_____
Period_____

Solving Incomplete Quadratic Equation

What is the difference between the following two quadratic equations?

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

$x^2 - 25 = 0$ ← This equation is missing the b-term. (linear term)

*A quadratic equation in which there is no 1st degree term (b-term) is called an incomplete or a pure quadratic equation.

*General form: $ax^2 + c = 0$ (no b-value)

*Remember 1) Degree of two means 2 answers and 2) The square root of an answer is ±

Solving Incomplete Quadratic Equations:

1) Find the solution set: $x^2 - 49 = 0$

A) By factoring:

① must be in DPO
② must be = 0
③ No $-x^2$

$x^2 - 49 = 0$

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

$x+7=0$ | $x-7=0$

$-7 \quad -7$ | $+7 \quad +7$

$x = -7$ | $x = 7$

B) By solving algebraically

$x^2 - 49 = 0$

$+49 \quad +49$

$\sqrt{x^2} = \sqrt{49}$

$x = \pm 7$

Same answer $\{-7, 7\}$

Extra!

$x^2 + 49 = 0$

$-49 \quad -49$

$\sqrt{x^2} = \sqrt{-49}$

$x = \pm\sqrt{-49}$

Not Real/Imaginary

✱ you can't take the √ of a neg #

Steps to Solving Algebraically

1) get the x^2 (variable) by itself
2) Take the square root of both sides
✱ Don't forget ±

2) Find the solution set: $\sqrt{g^2} = \sqrt{16}$

$g = \pm 4$

① Zeros
② Roots

3) $\sqrt{x^2} = \sqrt{48}$

$\sqrt{16} \cdot \sqrt{3}$

$x = \pm 4\sqrt{3}$

4) $7y^2 = 3y^2 + 36$

✱ you must ÷ B-4 you take the √

$-3y^2 \quad -3y^2$

$\frac{4y^2}{4} = \frac{36}{4}$

$\sqrt{y^2} = \sqrt{9}$

$y = \pm 3$

Wrong

$\sqrt{4y^2} = \sqrt{36}$

$\frac{2y}{2} = \frac{6}{2}$

$y = 3$

5) $4x^2 - 14 = 2x^2$

$-2x^2 \quad -2x^2$

$2x^2 - 14 = 0$

$+14 \quad +14$

$\frac{2x^2}{2} = \frac{14}{2}$

$\sqrt{x^2} = \sqrt{7}$

$x = \pm\sqrt{7}$

6) $\frac{x}{9} = \frac{144}{x}$ $x \neq 0$

$\sqrt{x^2} = \sqrt{1296}$

$x = \pm 36$

7) $2k^2 + 3k^2 = 375$

$\frac{5k^2}{5} = \frac{375}{5}$

$\sqrt{k^2} = \sqrt{75}$

$\sqrt{25} \cdot \sqrt{3}$

$k = \pm 5\sqrt{3}$

8) $10y^2 = 3y^2 + 140$

$-3y^2 \quad -3y^2$

$\frac{7y^2}{7} = \frac{140}{7}$

$\sqrt{y^2} = \sqrt{20}$

$\sqrt{4} \cdot \sqrt{5}$

$y = \pm 2\sqrt{5}$

9) $2x^2 - 32 = 0$

$+32 \quad +32$

$\frac{2x^2}{2} = \frac{32}{2}$

$\sqrt{x^2} = \sqrt{16}$

$x = \pm 4$

10) $\frac{x}{7} = \frac{7}{x}$ $x \neq 0$

$\sqrt{x^2} = \sqrt{49}$

$x = \pm 7$

11) $a^2 + 36 = 0$

$-36 \quad -36$

$\sqrt{a^2} = \sqrt{-36}$

$a = \pm\sqrt{-36}$

Not Real / Imaginary

12) $6x^2 - 4x^2 = 210$

$\frac{2x^2}{2} = \frac{210}{2}$

$\sqrt{x^2} = \sqrt{105}$

$x = \pm\sqrt{105}$

**Literal Equations & Quadratics

13) Solve for x:

$4x^2 - a^2 = 0$

$+a^2 \quad +a^2$

$\frac{4x^2}{4} = \frac{a^2}{4}$

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

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

Num: $\sqrt{a^2}$ (a) | Denom: $\sqrt{4}$ (2)

14) Solve for t:

(2) $s = \frac{1}{2}gt^2$ (2)

$\frac{2s}{g} = \frac{gt^2}{g}$

$\sqrt{t^2} = \frac{\sqrt{2s}}{\sqrt{g}}$

$t = \pm\frac{\sqrt{2s}}{\sqrt{g}} \cdot \frac{\sqrt{g}}{\sqrt{g}}$

$t = \pm\frac{\sqrt{2sg}}{\sqrt{g^2}}$ Num: $\sqrt{2sg}$ | Denom: $\sqrt{g^2}$ (g)

$t = \pm\frac{\sqrt{2sg}}{g}$ $g \neq 0$