Algebra 1
Day 1 – Practice

Unit 8: Solving Quadratics

SQUARE ROOT METHOD

Name: _____

Directions: Solve each of the following equations.

Level 1: One Step, may have to simplify radicals

1. $\sqrt{x^2} = \sqrt{64}$

$x = \pm 8$

$x = 8 \quad x = -8$

2. $\sqrt{x^2} = \sqrt{96}$

$x = \pm\sqrt{96}$ (16 · 6) $\quad x = \pm 4\sqrt{6}$

$x = 4\sqrt{6} \quad x = -4\sqrt{6}$

Level 2: Two Step, no simplifying of radicals

3. $x^2 - 9 = 16$

$+9 \quad +9$

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

$x = \pm 5$

$x = 5 \quad x = -5$

4. $x^2 - 1 = 80$

$+1 \quad +1$

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

$x = \pm 9$

$x = 9 \quad x = -9$

Level 3: Three Step, may simplify radicals

5. $4x^2 + 7 = 23$

$-7 \quad -7$

$\frac{4x^2}{4} = \frac{16}{4}$

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

$x = \pm 2$

6. $2x^2 + 3 = 93$

$-3 \quad -3$

$\frac{2x^2}{2} = \frac{90}{2}$

$\sqrt{x^2} = \sqrt{45}$ (9 · 5) $\quad x = \pm 3\sqrt{5}$

Level 4: Multi – Step, may simplify radicals

7. $\frac{2(x-3)^2}{2} = \frac{8}{2}$

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

$x - 3 = \pm 2$

$+3 \quad +3$

$x = 3 \pm 2$

$x = 3 + 2$

$x = 5$

$x = 3 - 2$

$x = 1$

8. $\frac{5(x-4)^2}{5} = \frac{125}{5}$

$\sqrt{(x-4)^2} = \sqrt{25}$

$x - 4 = \pm 5$

$+4 \quad +4$

$x = 4 \pm 5$

$x = 4 + 5$

$x = 9$

$x = 4 - 5$

$x = -1$

9. $\frac{4(x+1)^2}{4} = \frac{100}{4}$

$\sqrt{(x+1)^2} = \sqrt{25}$

$x + 1 = \pm 5$

$-1 \quad -1$

$x = -1 \pm 5$

$x = -1 + 5$

$x = 4$

$x = -1 - 5$

$x = -6$

10. $(x-5)^2 - 100 = 0$

$+100 \quad +100$

$\sqrt{(x-5)^2} = \sqrt{100}$

$x - 5 = \pm 10$

$+5 \quad +5$

$x = 5 \pm 10$

$x = 5 + 10$

$x = 15$

$x = 5 - 10$

$x = -5$

Name: _____ Date: _____

Solving Quadratic Equations Using Square Roots

UNIT QUESTION: How are real life scenarios represented by quadratic functions?

Today's Question: When does a quadratic have an imaginary solution? *MCC9-12.A.REI.4b*

Solving Quadratic Equations Using Square Roots

1. Get x^2 by itself.
2. Take the square root of both sides of the equation.
3. There will ALWAYS be a positive answer and a negative answer.
4. Check your answers!!!

Solve each equation.

1. $x^2 + 4 = 0$

$-4 \quad -4$

$\sqrt{x^2} = \sqrt{-4}$

$x =$ No Real Solution

2. $\frac{1}{2}x^2 + 3 = 12$

3. $2(x^2 - 5) = -x^2 - 1$

$2x^2 - 10 = -x^2 - 1$

$+x^2 \quad +x^2$

$3x^2 - 10 = -1$

$+10 \quad +10$

$3x^2 = 9$

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

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

when x^2 is on the inside

4. $\frac{1}{3}(x+4)^2 - 1 = 5$

5. $4(x+5)^2 = -64$

6. $2x^2 + 338 = 0$

7. $5(x-4)^2 = 125$

8. $\frac{1}{7}x^2 - 3 = 4$

$+3 \quad +3$

$\frac{7}{1} \cdot \frac{1}{7}x^2 = 7 \cdot \frac{7}{1}$

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

$x = \pm 7$

9. $-\frac{3}{5}x^2 - 2 = -5$

10. $-9x^2 = 243$