Trig 4.7

Solve radical equations* $=$
Solve radical inequalities $\leq \geq$ *Algebra 2 Ch.5

radical

radical equation $\sqrt{x-6} =$

extraneous solutions (might have to DQ...)

radical inequality (solutions must be REAL)

Quiz 4.5-4.6

$2 = \sqrt{9} + 5$

Use EWE...good decision making

2 Solve $x = \sqrt{x+7} + 5$.

$-5 \quad -5$

$(x-5)^2 = \sqrt{x+7}^2$

$x = 9$ ☺

~~$x = 2$~~

$x^2 - 10x + 25 = x + 7$

$-x \quad -7 \quad -x - 7$

$x^2 - 11x + 18 = 0$

$-9 \times -2 = 18$, $-9 + -2 = -11$

$(x-9)(x-2) = 0$

$x - 5$

$x - 5$

$-5x \quad 25$

$x^2 \quad -5x$

$y = \sqrt[3]{-66+2} + 8$ $y = \sqrt[3]{-64} + 8$

3 Solve $4 = \sqrt[3]{x+2} + 8$.

$-8 \quad -8$

$(-4)^3 = \left(\sqrt[3]{x+2}\right)^3$ $y = -4 + 8$

$-64 = x+2$

$-2 \quad -2$

$-66 = x$

EWE eeewe!

Rule of thumb: number of √ = number of rounds...

4 Solve $\sqrt{x+10} = 5 - \sqrt{3-x}$.

$\left(\sqrt{x+10}\right)^2 = \left(5 - \sqrt{3-x}\right)^2$

$x + 10 = 25 - 10\sqrt{3-x} + (3-x)$

$+x \quad +10 \quad -28 + x \quad +10$

-28

$\left(2x - 8\right)^2 = \left(-10\sqrt{3-x}\right)^2$

$4x^2 - 32x + 64 = 100(3-x)$

$+100x \quad -300 \quad 300 - 100x$

$-300 \quad +100x$

$\frac{4x^2}{4} + \frac{68x}{4} - \frac{236}{4} = \frac{0}{4}$

$x^2 + 17x - 59 = 0$

$x = -1$

$x = -6$

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

$25 - 5\sqrt{3-x} = 5\sqrt{3-x} + (3-x)$

$(2x-18)^2 = \left(10\sqrt{3-x}\right)^2$

$4x^2 - 72x + 324 = 100(3-x)$

$4x^2 - 72x + 324 = 300 - 100x$

$+100x \quad -300 \quad +100x$

$\frac{4x^2}{4} + \frac{28x}{4} + \frac{24}{4} = \frac{0}{4}$

$x^2 + 7x + 6 = 0$

$(x+1)(x+6) = 0$

6

1 6

7

Inequalities: Solutions must be REAL! What would make them not real?

5 **Solve $\sqrt{4x + 5} \leq 10$.**

Solve each inequality.

9. $\sqrt{5x + 4} \leq 8$

10. $3 + \sqrt{4a - 5} \leq 10$

7. $\sqrt{6x - 4} = \sqrt{2x + 10}$

8. $\sqrt{a + 4} + \sqrt{a - 3} = 7$