Trig 4.7

Solve radical equations* $= \sqrt[2]{(\ )}$ odd roots $\sqrt[3]{-8}$ neg. OK. $\sqrt[4]{\ }$

Solve radical inequalities $< >$

*Algebra 2 Ch.5

radical

radical equation $x =$

extraneous solutions (might have to DQ...)

radical inequality (solutions must be REAL)

Quiz 4.5-4.6 Tues.

Algebra 2:

$\sqrt{x} = 7$

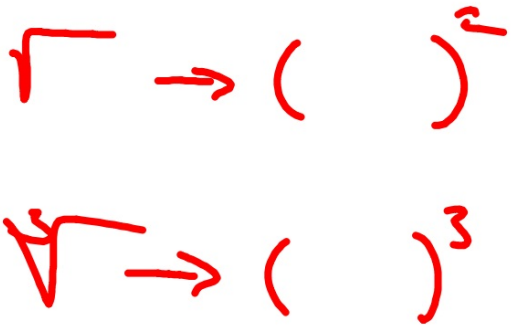
$x = 49$ ☺

$\sqrt{x} + 7 = 22$

$\sqrt{(x+7)} = 15$

$x + 7 = 225$

$x = 218$ ☺



Always check for extraneous answers!

(Because your solutions must be REAL!)

$\sqrt{1-4\cdot\frac{-3}{4}} \stackrel{?}{=} 2$

$\sqrt{1+3} \stackrel{?}{=} 2$

$\left(\sqrt[3]{-729}\right)^{\frac{1}{3}} + 12 = 3$

$-9 + 12 = 3$

$5 + \sqrt{9} = 2$

$5 + 3 = 2$

Solve each equation.

4. $\sqrt{1-4t} = 2$

$1 - 4t = 4$

$-1 \quad -1$

$-4t = 3$

$\frac{-4t}{-4} = \frac{3}{-4}$

5. $\sqrt[3]{x+4} + 12 = 3$

$-12 \quad -12$

$\left(\sqrt[3]{x+4}\right)^3 = -9$

$x + 4 = -729$

$-4 \quad -4$

$x = -733$ ☺

6. $5 + \sqrt{x-4} = 2$

$-5 \quad -5$

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

$x - 4 = 9$

$+4 \quad +4$

$x = 13$ ☹

NS

Use EWE...good decision making

$2 = \sqrt{2+7} + 5$

$2 = 3 + 5$

$9 = 4 + 5$

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

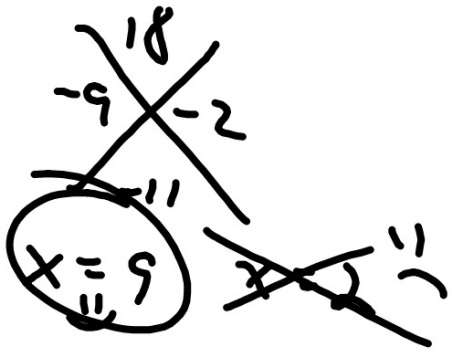
$(x-5) = (\sqrt{x+7})^2$ $\quad \sqrt{x-5} = \sqrt{x+7}$

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

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

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

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



$4 = \sqrt[3]{-64} + 8$

$4 = -4 + 8$

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

$-8 \qquad -8$

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

$-64 = x + 2$

$-2 \qquad -2$

$-66 = x$

EWE eeewe!

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

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

$\sqrt{9} = 5 - \sqrt{4}$

$3 = 5 - 2$

$\sqrt{9} = 5 - \sqrt{4}$

$3 = 5 - 2$

$2 = 5 - 3$

$x + 10 = 28 - x - 10\sqrt{3-x}$

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

$(2x - 18)^2 = (-10\sqrt{5-x})^2$

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

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

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

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

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

$6 \quad 1$

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

$x = -6 \quad x = -1$

(11) (11)

$5 - \sqrt{3-x}$

$5 - \sqrt{3-x}$

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

$25 - 5\sqrt{3-x}$

$2x - 18$

$2x - 18$

$-36x + 324$

$4x^2 - 36x$

Inequalities: Solutions must be REAL! What would make them not real?
Determine a window first.

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

$4x+5 \ge 0$

$4x \ge -5$

$x \ge -\frac{5}{4}$ window

$(\sqrt{4x+5})^2 \le (10)^2$

$4x+5 \le 100$

$-5 \quad -5$

$\frac{4x}{4} \le \frac{95}{4}$

$x \le \frac{95}{4}$

$-\frac{5}{4} \le x \le 23.75$



Solve each inequality.

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

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

4.7 13-35 odd

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

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