

Bell Work:

Solve.

$$7(x+4)^{\frac{3}{4}} + 10 = 66$$

$$7(x+4)^{\frac{3}{4}} = 56$$

$$(x+4)^{\frac{3}{4}} = 8$$

$$x+4 = 8^{4/3}$$

$$x+4 = (\sqrt[3]{8})^4$$

$$x+4 = 16$$

$$x = 12$$

$$\begin{array}{l} (\sqrt[3]{8})^4 \\ (2)^4 \end{array}$$

Solve. Check for extraneous solutions

$$1) (2x-4)^{1/2} = x-2$$

$$2x-4 = (x-2)^2$$

$$\cancel{2x-4} = x^2 - 4x + 4$$

$$0 = x^2 - 6x + 8$$

$$\begin{array}{l} 8 \overline{) 6} \\ | \end{array} (x-2)(x-4) = 0$$

$$x=2, x=4$$

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

$$\sqrt{2(2)-4} = 2-2$$

$$\sqrt{4-4} = 2-2 \quad \checkmark$$

$$\sqrt{2(4)-4} = 4-2$$

$$\sqrt{8-4} = 2$$

$$\sqrt{4} = 2 \quad \checkmark$$

$$\begin{aligned} 2) \sqrt{9-3x} &= (3-x)^2 \\ 9-3x &= (3-x)^2 \\ \cancel{9-3x} &= \underset{-9+3x}{\cancel{9}} - 6x + x^2 \\ 0 &= x^2 - 3x \\ 0 &= x(x-3) \\ x &= 0, 3 \end{aligned}$$

$$\sqrt{9-3(0)} = 3-0$$

$$\sqrt{9} = 3 \checkmark$$

$$\sqrt{9-3(3)} = 3-3$$

$$\sqrt{9-9} = 0 \checkmark$$

$$3) 2\sqrt[5]{5x+2} - 1 = 3$$

$$2\sqrt[5]{5x+2} = 4$$

$$\sqrt[5]{5x+2} = 2$$

$$5x+2 = 2^5$$

$$5x+2 = 32$$

$$5x = 30$$

$$x = 6$$

$$4) \sqrt{7x-6} - \sqrt{5x+2} = 0$$

$$\sqrt{7x-6} = \sqrt{5x+2}$$

$$7x-6 = 5x+2$$

$$\begin{array}{r} -5x \\ +6 \end{array}$$

$$2x = 8$$

$$x = 4$$

$$9) (x-7)^{\frac{1}{2} (4)} = (x+5)^{\frac{1}{4} (4)}$$

$$(x-7)^2 = (x+5)$$

$$x^2 - 14x + 49 = \cancel{x} + 5$$

$$\quad -x \quad -5$$

$$x^2 - 15x + 44 = 0$$

$$(x-11)(x-4) = 0$$

$$\boxed{x=11}, \cancel{4}$$

$$\sqrt{x-7} = \sqrt[4]{x+5}$$

$$\sqrt{11-7} = \sqrt[4]{11+5}$$

$$\sqrt{4} = \sqrt[4]{16} \checkmark$$

$$\sqrt{4-7} = \sqrt[4]{4+5}$$

$$\sqrt{-3} = \sqrt[4]{9}$$

$$\begin{array}{r} 44 \overline{) -15} \\ \underline{-44} \\ -15 \end{array}$$