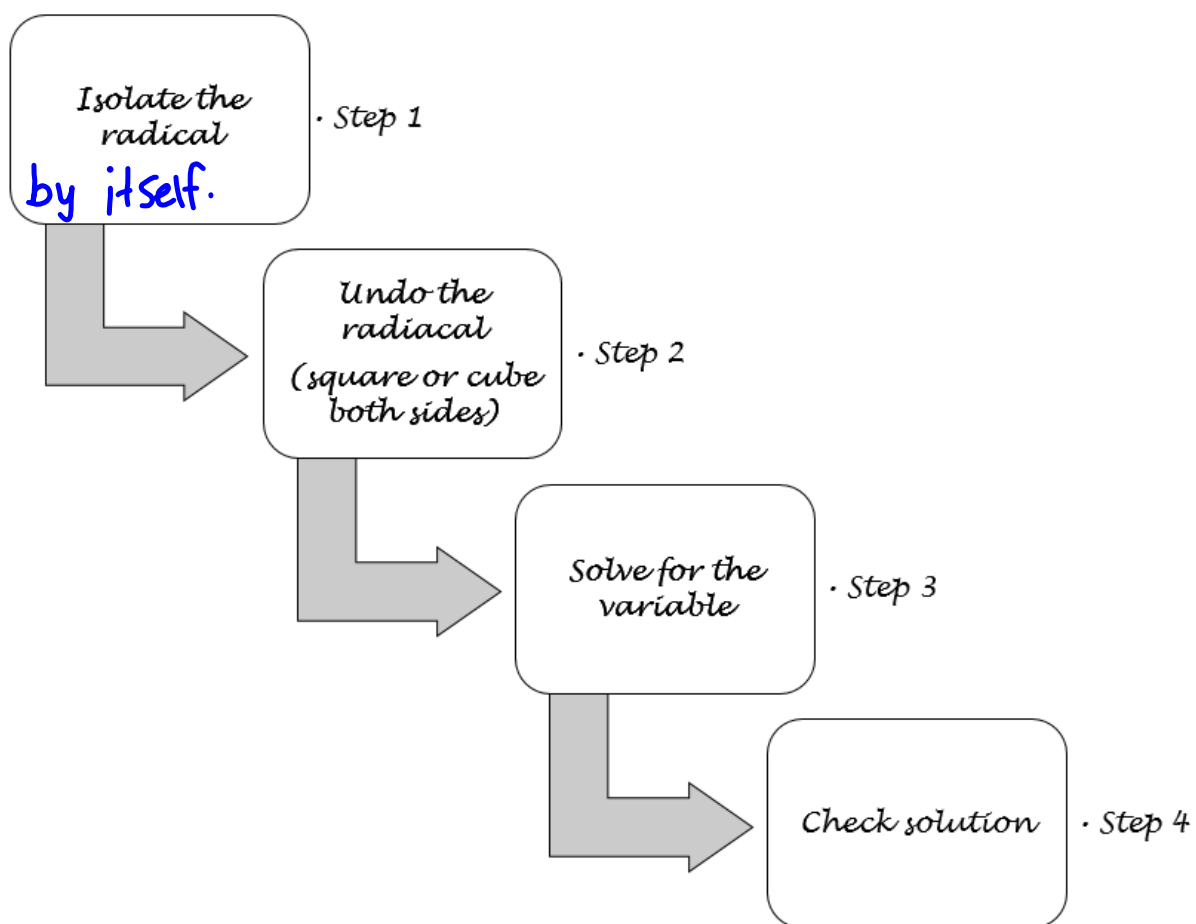


How do I solve an equation? What is the goal of solving?

*Solving Radical
Equations and
Rational
Exponent
Equations*



Solve the equation. Round your answer to the HUNDRETHS place when necessary. Remember to check for EXTRANEIOUS SOLUTIONS.

$$\sqrt{x-4} - 2 = 12$$

$$\begin{array}{r} +2 \\ +2 \end{array}$$

$$\left(\sqrt{x-4}\right)^2 = (14)^2$$

$$\begin{array}{r} x-4 = 196 \\ +4 \qquad +4 \end{array}$$

$$x = 200$$

check

$$\sqrt{200-4} - 2 = 12$$

$$\sqrt{196} - 2 = 12$$

$$14 - 2 = 12$$

$$12 = 12$$

$$3\sqrt[3]{x+5} - 2 = 13$$

$$\begin{array}{r} +2 \\ +2 \end{array}$$

$$3\sqrt[3]{x+5} = 15$$

$$\frac{3}{3}\sqrt[3]{x+5} = \frac{15}{3}$$

$$\left(\sqrt[3]{x+5}\right)^3 = (5)^3$$

$$\begin{array}{r} x+5 = 125 \\ -5 \qquad -5 \end{array}$$

$$x = 120$$

check $3\sqrt[3]{120+5} - 2 = 13$

$$3\sqrt[3]{125} - 2 = 13$$

$$3(5) - 2 = 13$$

$$15 - 2 = 13$$

$$13 = 13 \checkmark$$

$$\sqrt{5x+14} = \sqrt{2x-1}$$

$$5x+14 = 2x-1$$

$$\begin{array}{r} 5x+14 = 2x-1 \\ -2x \quad -2x \\ \hline 3x+14 = -1 \\ -14 \quad -14 \\ \hline 3x = -15 \\ \frac{3x}{3} = \frac{-15}{3} \end{array}$$

$$x = -5$$

No solution

$$3\sqrt{4x-12} = 2\sqrt{x}$$

$$3\sqrt{5(-5)-12} = 2\sqrt{-5}$$

$$\sqrt{-25-12} = \sqrt{-10}$$

$$\sqrt{-11} = \sqrt{-11}$$

$$\sqrt{-11} = \sqrt{-11}$$

$$3^2(\sqrt{4x-12})^2 = 2^2(\sqrt{x})^2$$

$$9(4x-12) = 4x$$

$$36x - 108 = 4x$$

$$\begin{array}{r} 36x - 108 = 4x \\ -36x \quad -36x \\ \hline -108 = -32x \\ \frac{-108}{-32} = \frac{-32x}{-32} \end{array}$$

$$3.375 = x$$

$$3.38 = x$$

Solve the equation. Round your answer to the **HUNDREDTHS** place when necessary. Remember to check for **EXTRANEOUS SOLUTIONS**.

$$(\sqrt{5x-4})^2 = (x)^2$$

$$\begin{array}{r} 5x - 4 = x^2 \\ -5x + 4 \quad -5x + 4 \\ \hline \end{array}$$

$$0 = x^2 - 5x + 4$$

$$0 = (x-1)(x-4)$$

$$x-1=0 \quad x-4=0$$

$$\boxed{x=1 \quad x=4}$$

$$\begin{array}{l} x=1 \\ \sqrt{5(1)-4} = 1 \end{array}$$

$$\sqrt{1} = 1$$

$$1 = 1$$

$$\begin{array}{l} x=4 \\ \sqrt{5(4)-4} = 4 \end{array}$$

$$\sqrt{16} = 4$$

$$4 = 4 \checkmark$$

Solve the equation. Round your answer to the HUNDREDTHS place when necessary. Remember to check for **EXTRANEOUS SOLUTIONS**.

$$3x^5 - 4 = 26$$

$$\begin{array}{r} +4 \\ +4 \end{array}$$

$$\frac{3x^5}{3} = \frac{30}{3}$$

$$x^5 = 10$$

$$(x^5)^{\frac{1}{5}} = (10)^{\frac{1}{5}}$$

$$\sqrt[5]{x^5} = \sqrt[5]{10}$$

$$x = 1.58$$

Check

$$3(1.58)^5 - 4 = 26$$

$$25.54 = 26$$

Solve the equation. Round your answer to the HUNDREDTHS place when necessary. Remember to check for **EXTRANEIOUS SOLUTIONS**.

$$(x-4)^{\frac{1}{3}} - 3 = 1$$

$$\begin{array}{r} \sqrt[3]{(x-4)} - 3 = 1 \\ +3 \quad +3 \end{array}$$

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

$$\begin{array}{r} x-4 = 64 \\ +4 \quad +4 \\ \hline x = 68 \end{array}$$

Check

$$\begin{array}{l} (68-4)^{\frac{1}{3}} - 3 = 1 \\ 4 - 3 = 1 \\ 1 = 1 \checkmark \end{array}$$

$$5(2x+3)^{\frac{1}{2}} + 10 = 100$$

$$\begin{array}{r} 5(2x+3)^{\frac{1}{2}} = \frac{90}{5} \\ \sqrt{2x+3} = 18 \end{array}$$

$$\begin{array}{r} (\sqrt{2x+3})^2 = (18)^2 \\ 2x+3 = 324 \\ -3 \quad -3 \end{array}$$

$$\begin{array}{r} 2x = 321 \\ \hline x = \frac{321}{2} \end{array}$$

$$x = 160.5$$

$$\textcircled{4} \quad (3x^2)^{\frac{7}{10}}$$

$$\textcircled{5} \quad \sqrt[13]{(2x)^6}$$

$$\sqrt[13]{(2x)^6}$$
$$2^{\frac{6}{13}} x^{\frac{6}{13}}$$

