

To Solve Radical Equations

1. *Find the restricted values for x if it is an even root. The expression inside an even root cannot be negative (≥ 0)
2. Isolate the radical (or one of the radicals) to one side of the equation
3. If the radical is a square root, Square each side of the equation. If the radical is not a square root, raise each side to a power equal to the index of the root.
4. Solve the resulting equation
5. Check your answer(s) on the original equation to avoid extraneous solutions.

Solve the following equations. Check your answer and eliminate extraneous solutions, if any.

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

5. $\sqrt{x+5}=\sqrt{x^2-15}$

2. $x-1=\sqrt{5x-9}$

6. $\sqrt[3]{1-2x}=3$

3. $x-3=\sqrt{30-2x}$

7. $\sqrt{x-9}+\sqrt{x}=9$

4. $3\sqrt{4x-8}+9=15$

8. $\sqrt{2x-1}=\sqrt{2x+15}-2$

To Solve Absolute Value Equations

1. Isolate the absolute value to one side of the equation
2. Establish the two cases:
 - a. Set the expression inside the absolute value equal to the other expression
 - b. Set the expression inside the absolute value equal to the opposite of the other expression
3. Solve the resulting equations
4. Check your answer(s) on the original equation to avoid extraneous solutions.

Solve the following equations. Check your answer and eliminate extraneous solutions, if any.

1. $|x-10|=6$

4. $\frac{|3v-2|}{5}=4$

2. $|3x+2|=4x+5$

5. $2|3x+4|-10=12$

3. $|1-6x|+3=46$

6. $2|x-4|-3=\frac{2}{3}x-3$