

Name:

Date:

Period:

Solving Radical Equations

A radical equation is an equation in which the **variable** is hiding inside the radical.

1. **Isolate** the radical.
2. If the radical is a **square root**, **square both sides**. If it is not a square root, raise each side to the appropriate power.
3. **Solve for x**. Depending on the problem, you could be solving a linear equation or a quadratic equation. Be sure to use your prior knowledge to solve appropriately.
4. **Check for extraneous solution(s)**. "Extra" roots that are not true solutions of the original radical equation are called **extraneous roots** and are **rejected as answers**.

Use the 4 steps above to solve each problem for x on a separate sheet of paper. All of these equations were specifically chosen to illustrate as many different scenarios as possible.

Example 1: $2\sqrt{3x+1} + 4 = 12$

Final Answer:

Example 2: $\sqrt{2x} + 16 = 10$

Final Answer:

Example 3: Solve for x. $x-1 = \sqrt{5x-9}$

Final Answer:

Example 4: $x-3 = \sqrt{30-2x}$

Final Answer:

Example 5: $\sqrt{5x+3} = \sqrt{3x+7}$

Final Answer:

Example 6: $2\sqrt{x+8} = 3\sqrt{x-2}$

Final Answer:

Example 7: $\sqrt{x+5} = \sqrt{x^2-15}$

Final Answer:

Example 8: $\sqrt[3]{5x-2} = 12$

Final Answer: