College Prep Math
Solving Radical Equations Notes

To solve a radical equation (or rational exponent equation) involving one radical:
1. Get the radical (variable) alone on one side of the equation.
2. Raise each side to the appropriate power to "undo" the radical or exponent.
3. Solve for the variable.
4. Check your answer by plugging your solution(s) back into the original equation.

What is an extraneous solution?

Example 1: Solve $\sqrt{x} - 3 = 4$.

Example 2: Solve $\sqrt{x} - 5 = -7$.

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

Example 4: Solve $3\sqrt{x} = x$.

Example 5: $(2x + 1)^{\frac{1}{3}} + 5 = 0$.

Example 6: Solve $x^{\frac{1}{4}} - 2 = 1$.

To solve a radical equation involving two radicals:

1. Get one of the radicals alone on one side of the equation.
2. Raise each side to the appropriate power to "undo" the radical.
3. Get the other radical alone on one side of the equation.
4. Raise each side to the appropriate power to "undo" the radical.
5. Solve for the variable.
6. Check your answer by plugging your solution(s) back into the original equation.

Example 7: Solve $\sqrt{3x+4} = \sqrt{4x+3}$

Example 8: Solve $\sqrt{2x-5} = 1 + \sqrt{x-3}$