Keeper # 28

Solving Radical &

Rational Exponent

Equations

Oct 1-8:40 PM

Solving Radical Equation:?

1.) Isolate the radical on one side of the equation.

2.) Raise BOTH SIDES of the equation to the nth power. (nth power = index value)

3.) Simplify and solve.

4.) Check your solution(s) for extraneous solutions.

    *Solutions that cause the equation to
be FALSE.

*Can only occur when your index is EVEN and the isolated radical equals a NEGATIVE number.

$$\sqrt[even]{isolated} = -\#$$

*If your only solution is extraneous, then there is NO SOLUTION.

Sep 14-10:23 AM

Example # 1: Solve

$$\sqrt{3x+1} - 3 = 1.$$

Example # 2: Solve.

$$\sqrt[3]{5 - 11x} = 3$$

Example # 3: Solve

$$2\sqrt[4]{4x-3} = -10$$

Sep 14-11:05 AM

Solving with Rational E xponents:

1.) Isolate the $(\underline{})^{\text{Rational Exponent}}$ on one side of the equation.

2.) Raise BOTH SIDES of the equation to the reciprocal of rational exponent.

$$\frac{2}{3} \rightarrow \frac{3}{2}$$

3.) Simplify and solve.

4.) Check your solution(s) for extraneous solutions.

*Can only occur if your denominator is **EVEN** and the isolated (_____) equals a **NEGATIVE** number.

$$(\underline{})^{\text{Rational Exponent}} = -\#$$

Jan 15-7:58 AM

Example # 4: Solve. Remember to check for extraneous solutions.

$$(x-3)^{\frac{2}{3}} - 1 = 9$$

Example # 5: Solve. Remember to check for extraneous solutions.

$$-2(x+4)^{\frac{1}{2}} + 3 = -5$$