Chapter 6 Section 4: Solving Radical Equations

Solving Radical Equations:

1. Isolate the radical on one side of the equation, if necessary
2. Raise each side of the equation to the same exponent to eliminate the radical symbol
3. Solve the equation using techniques from previous chapters
4. CHECK!!!!!

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

Example 2: Solve $\sqrt{2x + 7} = x - 4$.

When we checked the previous example, one of the solutions didn’t work. This is called an ___________________ ___________________. You must ALWAYS check for these.

Example 3: Solve $x + 1 = \sqrt{7x + 15}$. 
Example 4: Compare: $\sqrt{25}$ and $25^{\frac{1}{2}}$

In the radical sign, the _________ is the number _______ ______ _______. This value is the same as the __________________ in the fractional exponent. Therefore, _______ is the same as the ___________ ________________.

Example 5: Solve: $(x + 30)^{\frac{1}{2}} = x$

Example 6:

In a hurricane, the mean sustained wind velocity $v$ (in meters per second) can be modeled by $v(p) = 6.3\sqrt{1013 - p}$, where $p$ is the air pressure (in millibars) at the center of the hurricane. Estimate the air pressure at the center of the hurricane when the mean sustained wind velocity is 54.5 meters per second.