PC 11 **RADICAL EQUATIONS**

Steps for solving radical equations:

1. **Solve = find the proposed solution(s)**
   - rearrange the equation if necessary so the equation has one of the desired formats:

$\sqrt{\text{something}} = \text{number}$
$\sqrt{\text{something}} = \text{algebraic expression}$
$\sqrt{\text{something}} = \sqrt{\text{something}}$
$\sqrt{\text{something}} \pm \sqrt{\text{something}} = \text{number}$
$\sqrt{\text{something}} \pm \sqrt{\text{something}} = \text{algebraic expression}$

   - Square both sides (or raised both sides to an exponent that is the same as the index of the radical expression)
   - Distribute = expand = "FOIL" in necessary
   - Collect like terms and simplify
   - You may have to square both sides again and collect like terms one more time
   - Solve for the variable

2. **Check = show that LS=RS**
   - Use the very original equation
   - Do not move terms and numbers left-to-right and right-to-left. Work on the left side separately from the right side until you manage to simplify them both.
3. **Verify = determine whether the proposed solution meets = follow the restrictions imposed on the variable.**
   - Clearly show that you compare the proposed value with the restriction.
   - Clearly show that the statement from the above comparison is either true or false.
4. **Write the concluding statement:**
   ∴ x = # is a valid solution.
   ∴ x = # is an extraneous solution.