MA 103   Solving Equations Involving Radical Expressions
Section 7.6

To solve an equation which involves the variable under a radical expression with index n, use the following steps:

(1)   Isolate the term that involves the radical expression. That is, the term with the radical expression must be on one side of the equation and all other terms must be on the other side of the equation.

(2)   Raise each side of the equation to the nth power in order to eliminate the radical expression.

(3)   After eliminating the radical expression, solve the equation using techniques we have previously studied.

(4)   Sometimes when an equation involving radical expressions is solved, a solution is introduced that works in the equation in which the radical expression has been eliminated but not in the original equation. This is called an ***extraneous solution***. You can only tell if this has happened by checking. Therefore you must <u>always</u> check your answers by substituting the solution(s) into the <u>original</u> equation. Remember that you can use the Table feature of your calculator to help you with this if you wish.

Solve each of the following equations and <u>check your answers.</u>

1. $\sqrt{2x-5} - 3 = 0$

2. $\sqrt{2x+8} = x$

3. $\sqrt{3x-2}+2=x$

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

5. Given the function $f(x)=\sqrt{3x+4}+x$,

(a) Find the domain of the function.

(b) Recall that the y-intercept of a function occurs when x = 0. Keeping this in mind, find the y-intercept of the function.

(c) Recall that the x-intercepts of a function occur when y = 0. Keeping this in mind, find the x-intercept(s) of the function. It is essential that you check your answers.