Due: Thursday January 27th, 2005
Problems to be turned in

1. Prove the Theorem stated in class for the fixed point iteration method.
2. Manually convert the following numbers to base 2: 5, 21, 35, 64. Check your conversion with the built-in `dec2bin` function.
3. Convert the following numbers to floating point values with eight-bit mantissas: 0.4, 0.5, 1.5
4. MATLAB has inbuilt variables called `realmax` and `realmin` denoting the largest and the smallest numbers it can store.
   (a) Check that 10*`realmax` generates an overflow while `realmax` + 1 does not. Explain.
   (b) Using MATLAB command window find the largest n such that $n!$ exceeds `realmax`. Briefly describe how you found it.
5. Consider $f(x) = x^3 - 7$. Find a positive root of $f(x) = 0$, with the thelp of a calculator. Now
   (a) Write a m-file function `bisection` that takes in as input a(left end point), b (right end point), n the number of iterations and performs the Bisection method for the above function.
   (b) Starting with the interval $[1, 2]$ perform 3 iterations. Compare your answer to the calculator answer.