1. (5 points) Consider the following recursive function.

   ```
   int Choose (int n, int k) {
       if (k == 1) {
           return n;
       } else if (n == k) {
           return 1;
       } else {
           return Choose(n-1, k-1) + Choose(n-1, k);
       }
   }
   ```

   a. What is/are the base case(s) of this function?
   b. What is/are the recursive step(s) of this function?
   c. What is the result of the function call Choose(5,2) ?

2. (5 points) Write the analysis and design for a recursive function `NumDigits` that returns the number of digits in a non-negative integer. E.g. `NumDigits(2485)` returns 4 while `NumDigits(32)` returns 2.

3. (5 points) Write the C++ function definition for the recursive `NumDigits` function designed in the previous exercise.

4. (5 points) Write a C++ function definition for an iterative (i.e., non-recursive) version of `NumDigits`. 