Quiz 13: Recursion

Name: _____

CSCI 110 Section 1

Friday, September 23, 2016

1) Write a recursive function that takes an integer n and returns the sum of all consecutive numbers from n to 1. Hint: what's the base case? Then work through some examples. [100 points]

2) Write a recursive function that takes an integer n and returns the value of the nth fibonacci number. The fibonacci sequence is 1, 1, 2, 3, 5, 8, 13, 21... where the next number in the sequence is calculated by taking the sum of the two previous numbers. So fib(1) == 1, fib(2) == 1, fib(3) == 2, fib(4) == 3, fib(5) == 5, etc. [extra credit, 100 points]

3) Using a recursive function to calculate fibonacci numbers is extremely inefficient. Why? [extra credit, 25 points]