Dean Smith

CS200

Homework 11

Proof #1:

Given that when our base case is n = 7 because 7 is the lowest valued integer we can use. When n = 7, can be simplified to which is true. Next, we must check if n+1 holds when it is replaced for n as our inductive step. When we replace n for n + 1, we get which simplifies to . We have already proven that when n > 6, and under the same conditions, 3 < n + 1. Therefore, holds and the statement is true.

Proof #2:

Given that is divisible by 3, our base case is 0. = 0 which is divisible by 3. Next, we must check if n+1 holds when it is replaced for n as our inductive step. When we replace n with n + 1, we get which can be expanded and simplified down to . We have already proven that is divisible by 3 and divided by 3 will always be Therefore, holds and the statement is divisible by 3 is true.