Week 11: Verifying Correctness of Recursive Programs

Exercise 1

Base case**:**

Since n must be greater than or equal to one, the base case will be:

fact(1) returns 1, which is correct.

Inductive step:

The function is correct if fact(n) = n * fact(n - 1) is correct when fact(n – 1) is correct.

fact(2) returns 2 * fact(1) = 2 * 1 = 2, which is correct.

Since fact(2) is correct, then fact(n) is correct for all $n \geq 1$.