PHY 905

Homework 1 Update

2. Floating points only hold a finite number of digits. So, if the difference in the magnitudes of two numbers that you're adding is larger than the number of digits that the floating point can hold, then one won't be able to completely store the digits required to represent the sum. This is because it will contain more digits than the floating point can hold.

4. For x less than 1, the relative error decreases polynomially (because the plot is linear in a log-log plot). The relative error is not zero the downward recursion is off (see reasoning above). The error is smallest for x values between 1 and 1.5. This implies that both upward and downward recursion are giving the same (correct) value. After 1.5 the error quickly jumps and then stays constant near 1. Here, again, the upward recursion is better.