CS 315 Homework Exercise 3

Due Tuesday, October 23, 2018 by class time

Please do the following **NEATLY IN PENCIL** on paper and submit them to me at the start of class.

Remember to put your name on the sheets of paper.

Use the **formal definition** of big-O to do the following:

1. If f and g are functions and f(n) is less than g(n) for all values of n, prove that 15f(n) + 6g(n) is O(g(n)).
2. Prove that $100n^2 + 200log_2(n) + 50$ is $O(n^2)$.
3. Prove that $2^{n-1} + 2^{n-2} + 2^{n-3} + \cdots + 2^1 + 1$ is $O(2^n)$.