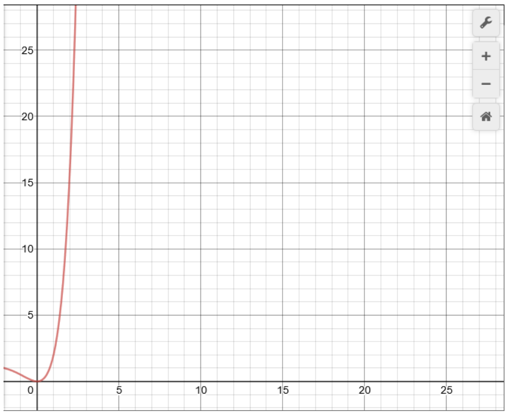
Brannon Ha and Chandler Ebrahimi

brannonha@csu.fullerton.edu

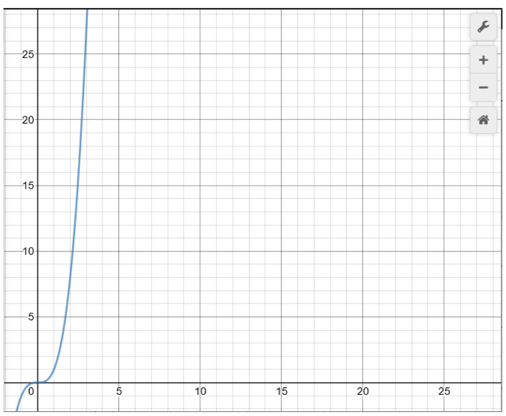
csebra@csu.fullerton.edu

Project 4

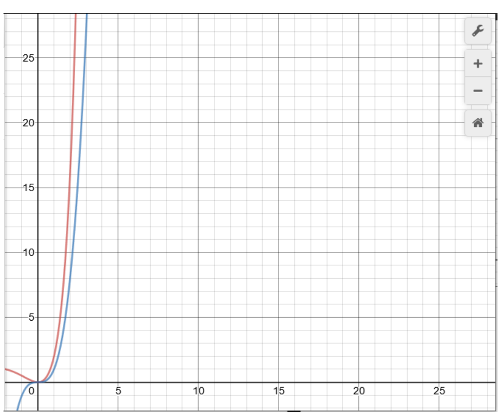
Exhaustive



Dynamic



Both



Questions:

a) The fit lines are consistent with the efficiency class since the dynamic algorithm of O(n^3) should be slightly more efficient than that of the exhaustive algorithm of O(n^2 2^n).
b) The evidence is consistent with the hypothesis because observing the graphs shows that for every n, the time efficiency of the polynomial-time dynamic programming algorithm is less than that of the exponential-time exhaustive search algorithm.
c) Overall, implementing the exhaustive algorithm was more challenging than the dynamic algorithm. For the exhaustive algorithm, getting the bits to compare correctly in code was a difficult task. The dynamic algorithm was longer but much more comprehensible. The most difficult part of the dynamic algorithm was what to assign A[i][j] towards the end of the second for loop. Our group prefers to use dynamic programming due to it being slightly more efficient as well as easier to understand.