

Homework 1

Due: Monday, 09/08/14 11:59pm

1. In this problem we want to investigate the efficiency of an algorithm in terms of its work. Complete the following table for $n = 10, 10^2, 10^3, 10^4, 10^5$. Some numbers may be too large to work with so just enter ∞ for those. Use the table to order the growth rates ($n, n^2, 2n, n^3, n \log_2 n, n!, n!!, \log_{10} n$ and $4n$) from slowest growing to fastest growing for large n .

n	n^2	$2n$	n^3	$n \log_2 n$	$n \log_2 n$	$n!$	$n!!$	$\log_{10} n$	$4n$
10									
10^2									
10^3									
10^5									

Write out the list from the slowest to the fastest:

2. Consider the list

$$\{15, 3, 5, 29, 12\}$$

Write out all steps for completing the Selection Sort algorithm to sort the list in ascending order.