Homework Assignment 2

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Problem 1:

a) i) n

ii) addition

iii) no

b. i) the size of n

ii) multiplication

iii) no

c. i) n

ii) comparison of two numbers

iii) no

d. i) the sum of the two numbers

ii) modulo division

iii) yes

e. i) the size of n

ii) removing numbers from a list

iii) no

f. i) n

ii) multiplication of two digits

iii) no

Problem 2:

a) 2 times greater

b) 2 times greater

c) 4 times greater

d) 16 times greater

e) 64 times greater

f) (2n)3 times greater

Problem 3:

a) *n(n* + 1*)* and 2000*n*2 : Same order of growth

b) 100*n2* and 0*.*01*n*3 : The first has a lower order of growth than the second

c) log2 *n* and ln *n*  : Same order of growth

d) log22nand log2 *n*2 : The first has a higher order of growth than the second

e) 2*n*−1 and 2*n*  : Same order of growth

f) (*n* − 1*)*! and *n*! : First has a lower order of growth than the second

Brute Force Coding:

1) Computing an (a > 0, n is a nonnegative integer)

2) Computing n!

3) Multiplying two matrices

4) Searching for a key of a given value in a list

