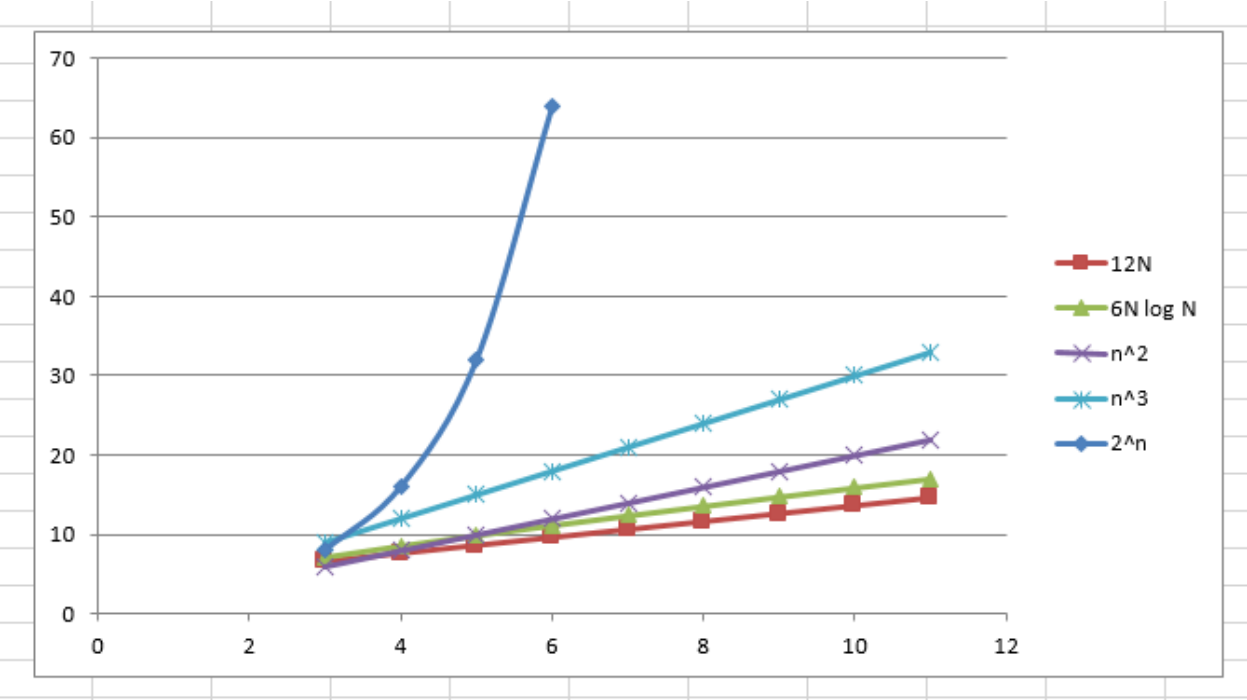
Name: Md Habibur Rony
Student ID: 984582
Weekday: Week 1- Day 1

Answer to the Q No. R-1.1:



Answer to the Q No. R-1.2:

For n0 = 30 for n>=30, A is better than B		
n	**A = 10n log n**	**B = n^2**
2	6.020599913	4
3	14.31363764	9
4	24.08239965	16
5	34.94850022	25
6	46.68907502	36
7	59.1568628	49
8	72.24719896	64
9	85.88182585	81
10	100	100
11	114.5531954	121
12	129.5017495	144
13	144.8126358	169
14	160.457925	196

15	176.4136889	225
16	192.6591972	256
17	209.1763166	289
18	225.9490509	324
19	242.9631842	361
20	260.2059991	400
21	277.6660519	441
22	295.3329898	484
23	313.1974023	529
24	331.250698	576
25	349.4850022	625
26	367.8930705	676
27	386.4682163	729
28	405.2042488	784
29	424.0954194	841
30	443.1363764	900

Answer to the Q No. R-1.10:

Algorithm Loop1(n)	**Big - Oh**
s ← 0	O(1)
for *i* ← 1 to *n* do	O(n)
s ← *s* + *i*	O(n)
T(n)	O(n)

Answer to the Q No. R-1.14:

Algorithm Loop5(n)	**Big - Oh**
s ← 0	O(1)
for *i* ← 1 to n^2 do	$O(n^2)$
for *j* ← 1 to i do	$O(n^4)$
s ← *s* + *i*	$O(n^4)$
T(n)	$O(n^4)$

Answer to the Q No. R-1.6:

	~~n=4~~	n=30
1/n	~~0.2203~~	.033
log log n	~~1~~	0.16941
√n	~~2~~	5.477225575
5n		4.906890596

n log n	~~2.408~~	44.313637
$2n \log^2 n$	~~2.8998~~	130.91323
$4 n^{3/2}$	~~32~~	164.3167673
$4^{\log n}$	~~16~~	900
$n^2 \log n$	~~9.63~~	1329.40912
n^3	~~64~~	27000
2^n	~~16~~	1073741824
4^n	~~256~~	1.15292E+18

$1/n < \log \log n < \sqrt{n} < 5n < n \log n < 2n \log^2 n < 4n^{3/2} < 4^{\log n} < n^2 \log n < n^3 < 2^n < 4^n$

Prove: $\log_b x^a = a \log_b x$