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UID:	**2021300054**
BATCH:	**C**
EXPERIMENT NO:	**01**

Aim: To implement the various functions e.g. linear, non-linear,quadratic, exponential etc.The input (i.e. n) to all the above functions varies from 0 to 100 with increment of 1. Then add the function n! in thelist and execute the same for n from 0 to 20.

Code:

```
#include<stdio.h>
#include<math.h>
void factorial(int i)
{
   long long int ans=1;
   for(int n;n>=1;n--)
   ans=ans*n;
   printf("%lld",ans);
}
void fun1(int i)
{
   printf("\t%d\t",i);
}
```

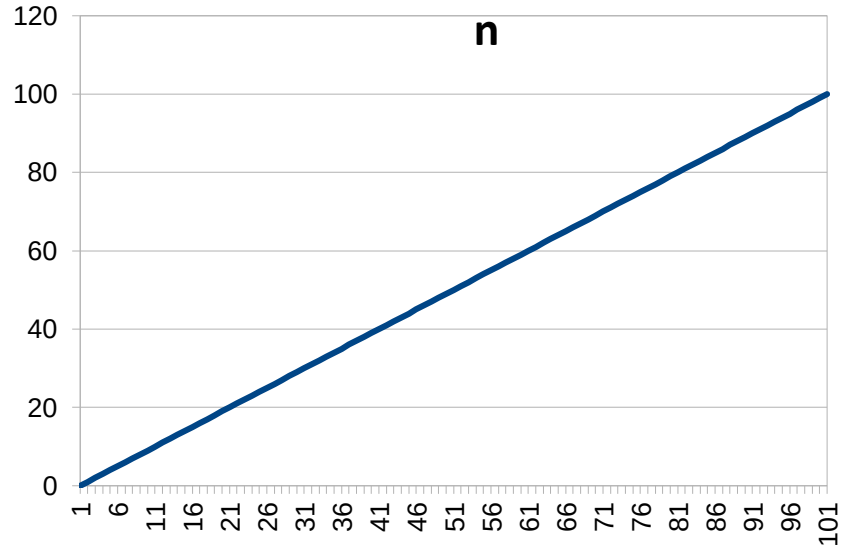
```
void fun2(int i)
{
    printf("%.3f\t",pow(2,i));
}
//void()
void fun3(int i)
{
    printf("%.3f\t",pow(2,(pow(2,i))));
}
void fun4(int i)
{
    printf("%.3f\t",pow(i,3));
}
void fun5(int i)
{
   printf("%.3f\t",pow(2,(pow(2,(i+1)))));
}
void fun6(int i)
{
   printf("%.3f\t",pow(1.5,i));
}
void fun7(int i)
{
```

```
 printf("%.3f\t",pow(2,log2(i)));
}
void fun8(int i)
{
 printf("%.3f\t",pow(log2(i),log2(i)));
}
void fun9(int i)
{
 printf("%.3f\t",log(log(i)));
}
void fun10(int i)
{
 printf("%.3f\t",pow(log(i),2));
}
void main()
{
        //float f1(),f2,f3,f4,f5,f6,f7,f8,f9,f10;
        int n;
        printf("Sr
No.\tn\t2^n\t2^(2^n)\tn^3\t2^2^(n+1)\tn^(3/2)/t(lg
n)^2\t(lgn)^lgn\tlg(lg n)\t(lg n)^2\n");

         for(int i=0;i<=100;i++)
         {
```

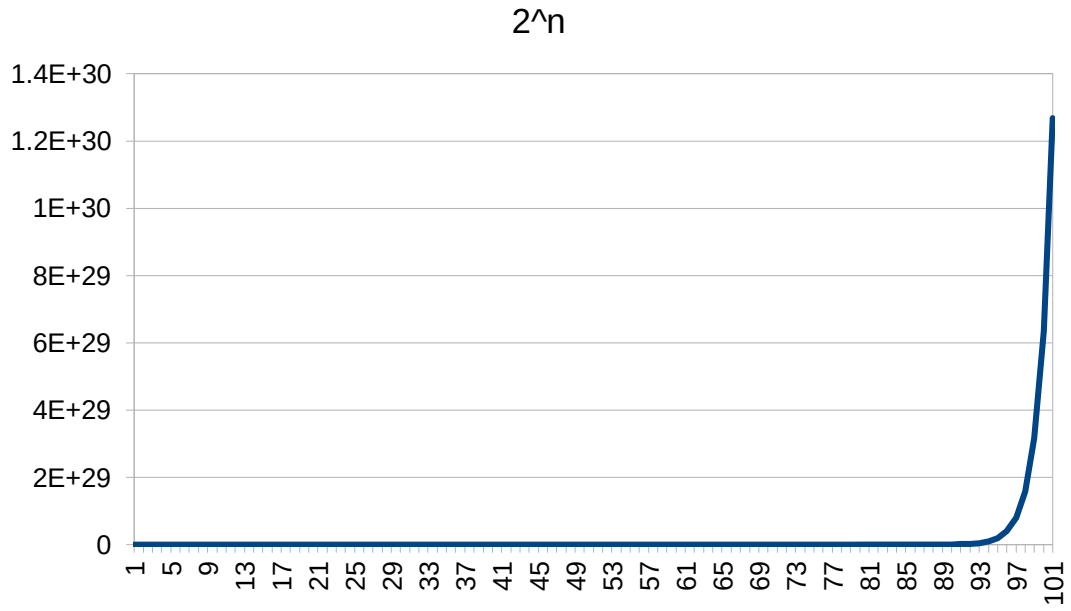
```
            printf("\nFor i=%d:\t",i);
                fun1(i);
                fun2(i);
                fun3(i);
                fun4(i);
                fun5(i);
                fun6(i);
                fun7(i);
                fun8(i);
                fun9(i);
                fun10(i);
                if(i<=20)
                factorial(i);

        }
}
```

Graphs:

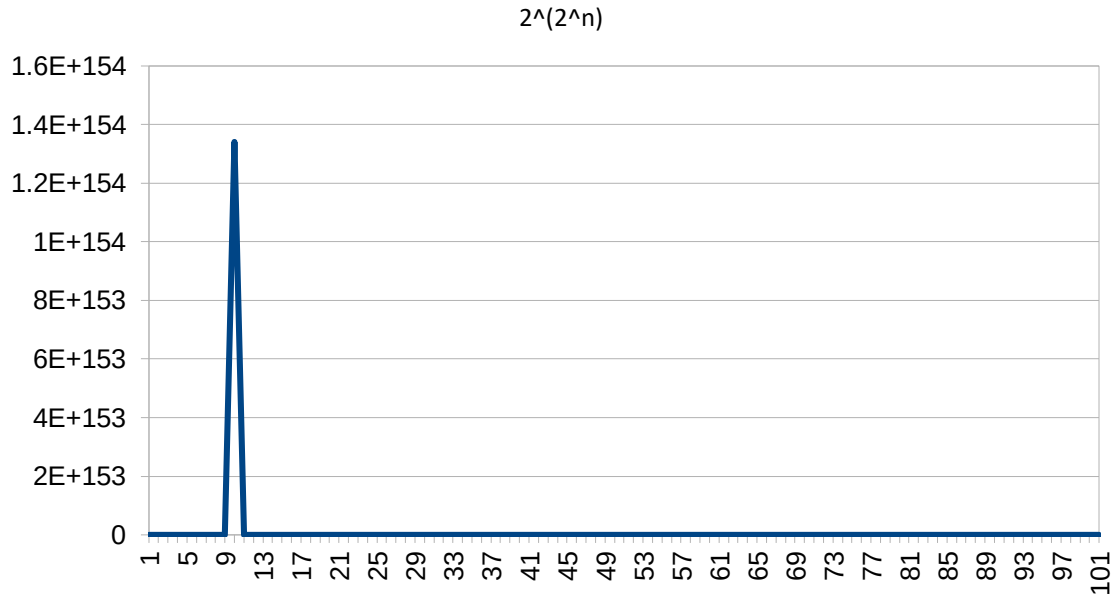
1.


n
120
100
80
60
40
20
0
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
101

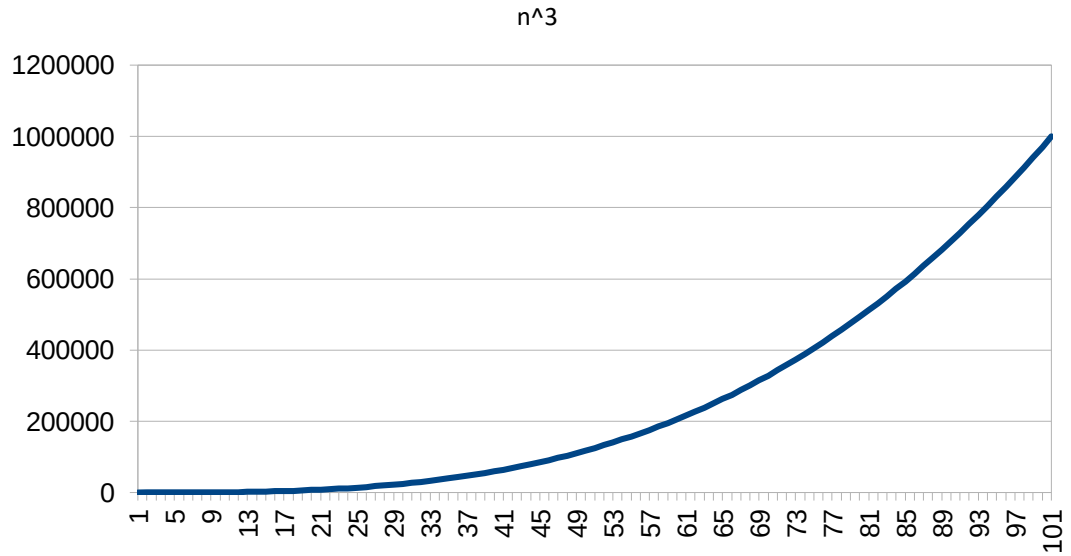
2.


2^n
1.4E+30
1.2E+30
1E+30
8E+29
6E+29
4E+29
2E+29
0
1
5
9
13
17
21
25
29
33
37
41
45
49
53
57
61
65
69
73
77
81
85
89
93
97
101

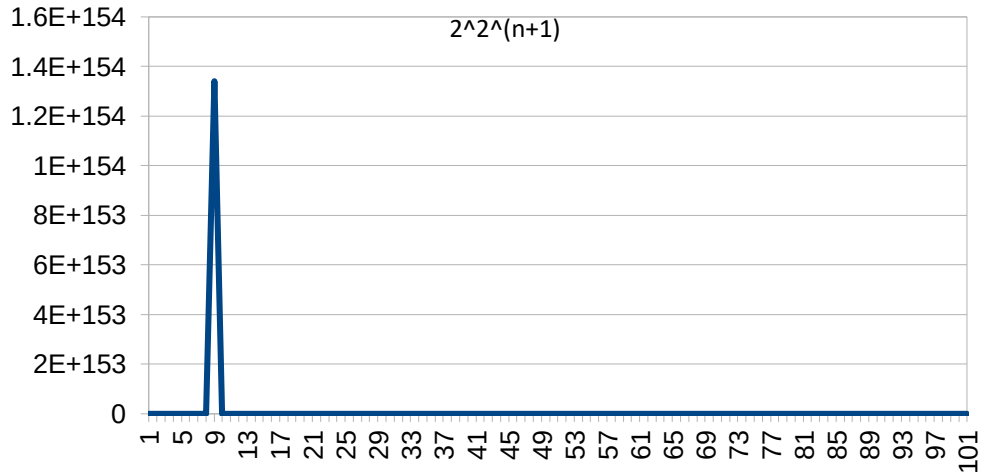
3.


2^(2^n)
1.6E+154
1.4E+154
1.2E+154
1E+154
8E+153
6E+153
4E+153
2E+153
0
1
5
9
13
17
21
25
29
33
37
41
45
49
53
57
61
65
69
73
77
81
85
89
93
97
101

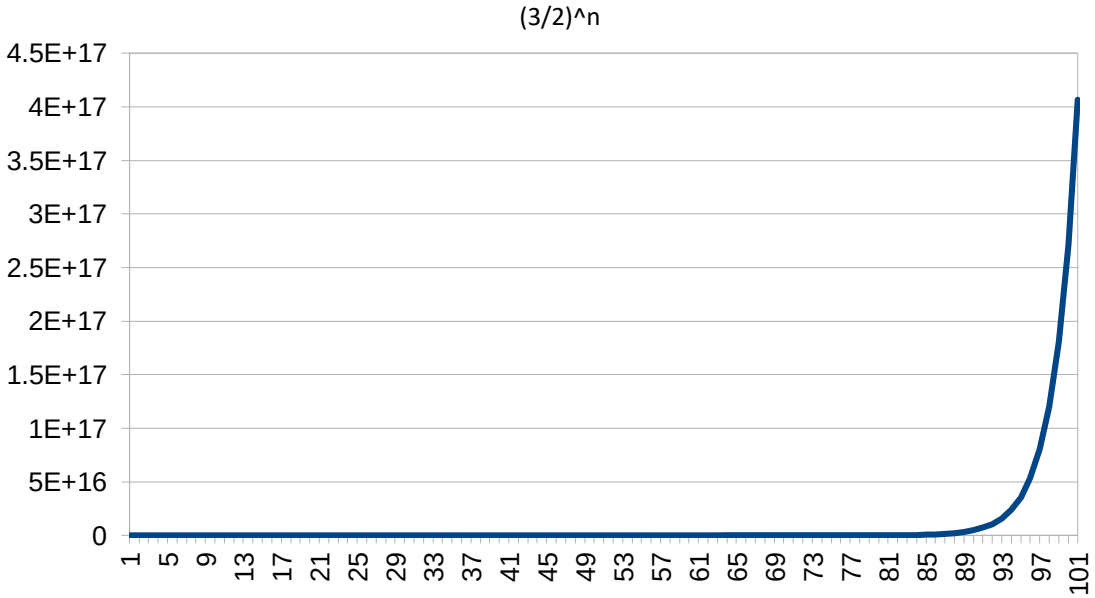
4.


n^3
1200000
1000000
800000
600000
400000
200000
0
1
5
9
13
17
21
25
29
33
37
41
45
49
53
57
61
65
69
73
77
81
85
89
93
97
101

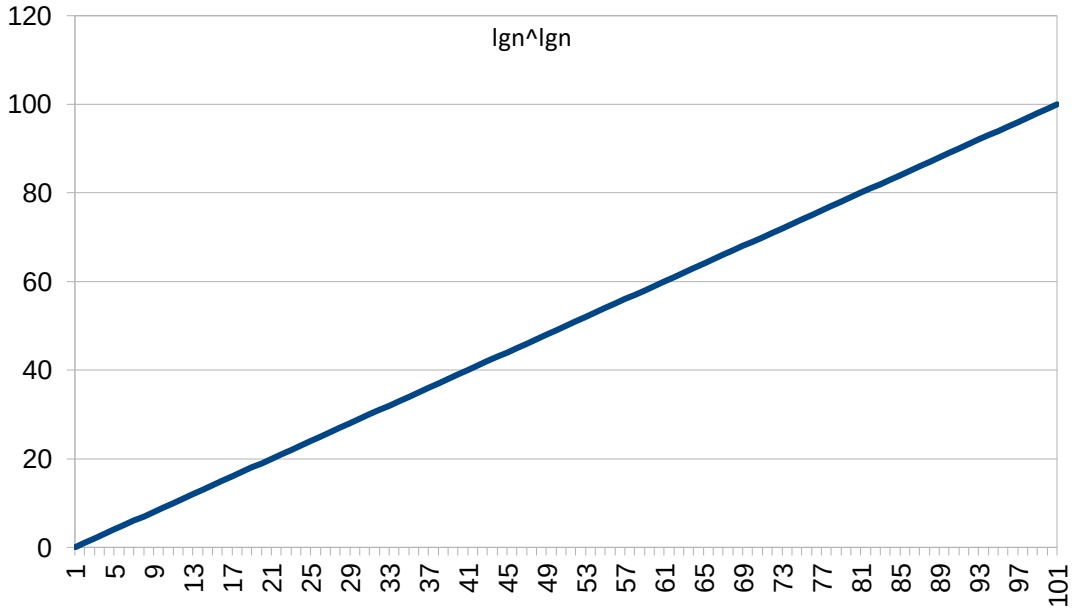
5.


2^2^(n+1)
1.6E+154
1.4E+154
1.2E+154
1E+154
8E+153
6E+153
4E+153
2E+153
0
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89 93 97 101

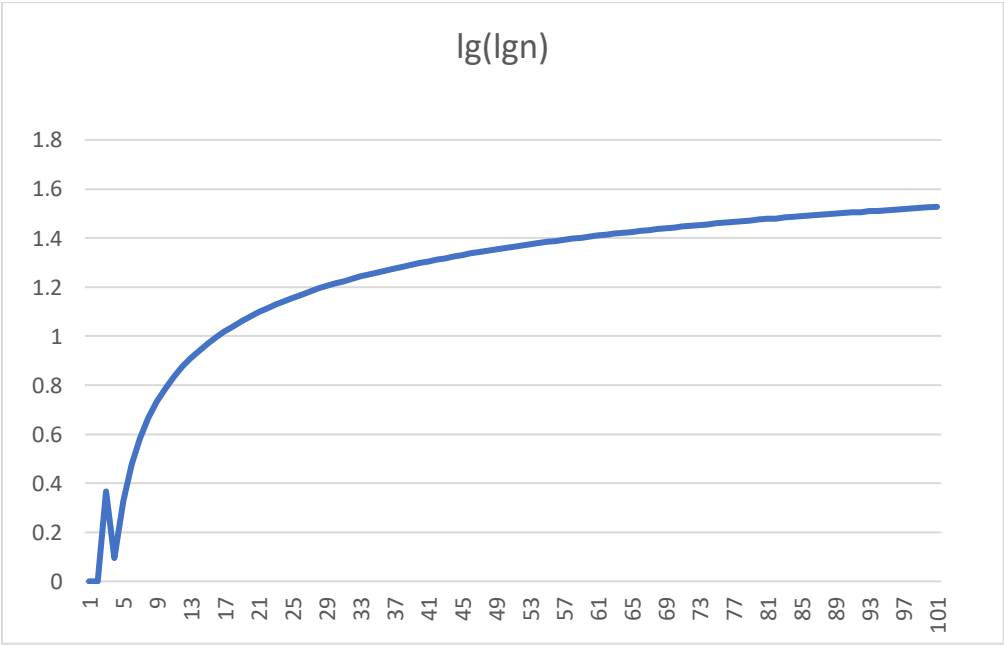
6.


(3/2)^n
4.5E+17
4E+17
3.5E+17
3E+17
2.5E+17
2E+17
1.5E+17
1E+17
5E+16
0
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89 93 97 101

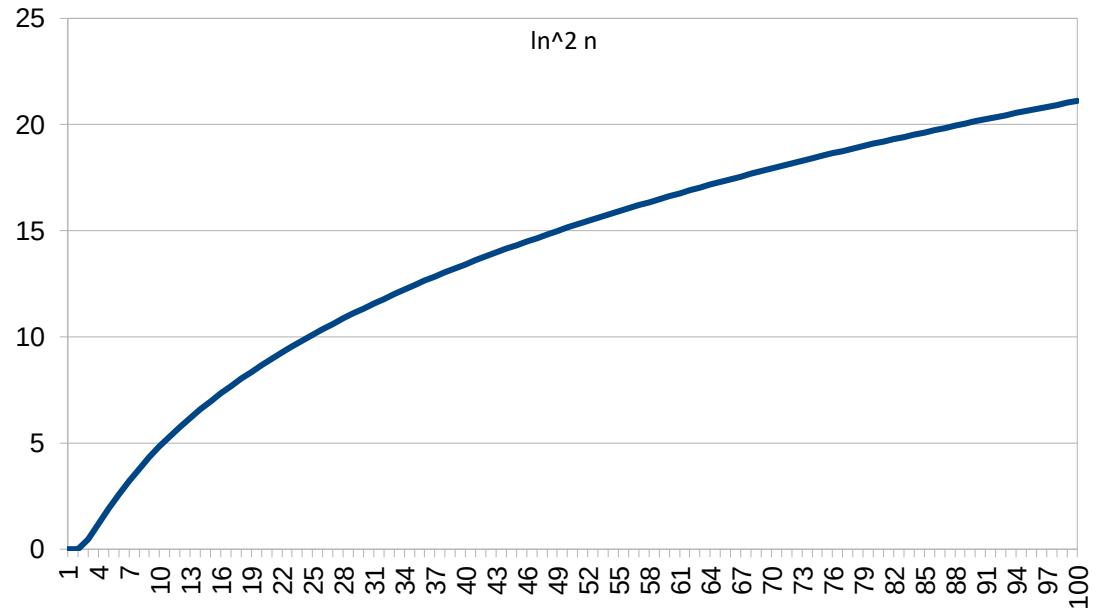
7.


lgn^lgn
120
100
80
60
40
20
0
1
5
9
13
17
21
25
29
33
37
41
45
49
53
57
61
65
69
73
77
81
85
89
93
97
101

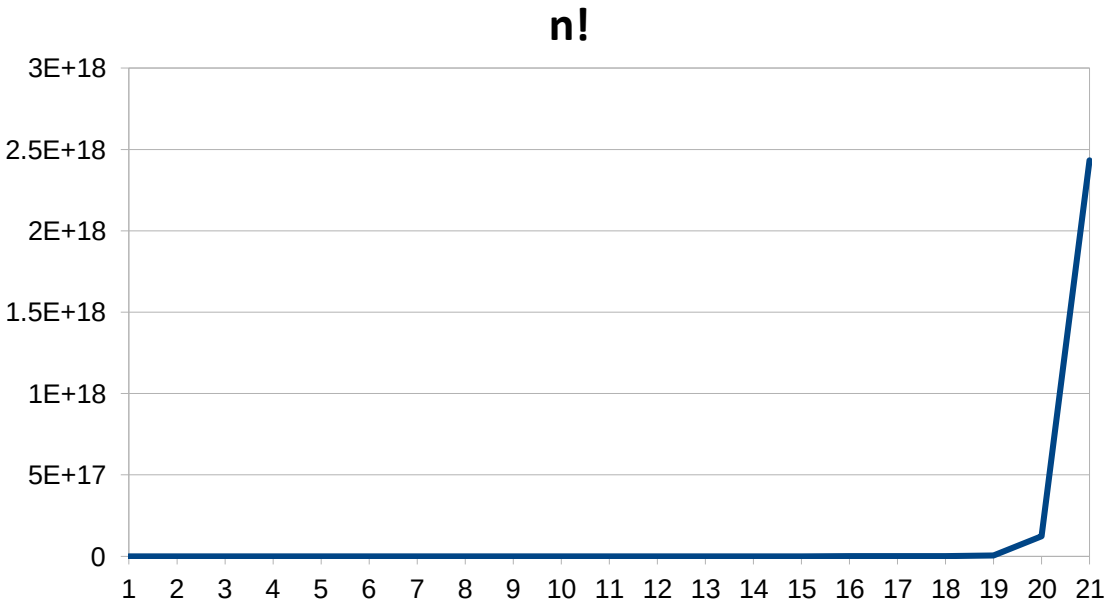
8.


lg(lgn)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1
5
9
13
17
21
25
29
33
37
41
45
49
53
57
61
65
69
73
77
81
85
89
93
97
101

9.


ln^2 n
25
20
15
10
5
0
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79 82 85 88 91 94 97 100

10.


n!
3E+18
2.5E+18
2E+18
1.5E+18
1E+18
5E+17
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

Conclusion: By performing the above experiment I was successfully able to implement the various functions e.g. linear, non-linear,quadratic, exponential,etc.The input (i.e. n) to all the above functions varies from 0 to 100 with increment of 1.