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AIM:	To write a program for 10 functions and plot their graph
ALGORITHM:	1.Start 2.Make a menu driven program for all functions 3.In each function definition write the calculation for the specific function in a loop for 0-100 number 4.Ask the user which function he/she wants to print 5.Print the function 6.End

PROGRAM:	#include <stdio.h>
	#include<math.h>
	
	int n;
	void f1()
	{
	int ans[100];
	for(n=0;n<=100;n++)
	{
	ans[n]=n;

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        printf("%d %d",n,ans[n]);
        printf("\n");
    }
}

void f2()
{
    int ans[100];
    for(n=0;n<=100;n++)
    {
        ans[n]=n*n*n;
        printf("%d  %d",n,ans[n]);
        printf("\n");
    }
}
void f3()
{
    double ans[100];
    for(n=0;n<=100;n++)
    {
        ans[n]=pow(2,n);
        printf("%d %.2f",n,ans[n]);
        printf("\n");
    }
}
void f4()
{
    double ans[100];
    for(n=0;n<=100;n++)
    {
        ans[n]=pow(1.5,n);
        printf("%d %.2f",n,ans[n]);
        printf("\n");
    }
```

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}
double f5()
{
   double ans[100];
   for(n=0;n<=100;n++)
   {
      if (n==0)
      {
         continue;
      }
      ans[n]=log(n);
      printf("%d %.2f",n,ans[n]);
      printf("\n");
   }
}
double f6()
{
   double ans[100];
   for(n=0;n<=100;n++)
   {
      ans[n]=log10(n);
      printf("%d %.2f",n,ans[n]);
      printf("\n");
   }
}
double f7()
{
   double ans[100];
   for(n=0;n<=100;n++)
   {
      ans[n]=sqrt(log2(n));
      printf("%d %.2f",n,ans[n]);
      printf("\n");
   }
```

```
}
double f8()
{
   double ans[100];
   for(n=0;n<=100;n++)
   {
      ans[n]=n*pow(2,n);
      printf("%d %.2f",n,ans[n]);
      printf("\n");
   }
}
double f9()
{
   double ans[100];
   for(n=0;n<=100;n++)
   {
      ans[n]=exp(n);
      printf("%d %.2f",n,ans[n]);
      printf("\n");
   }
}
double f10()
{
   double ans[100];
   for(n=0;n<=100;n++)
   {
      ans[n]=pow(2,log2(n));
      printf("%d %.2f",n,ans[n]);
      printf("\n");
   }
}
double fac(int i)
{
   if (i>=1)
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```
        return i*fac(i-1);
    else
        return 1;
}
double f11()
{
    double ans[100];
    for(n=0;n<=100;n++)
    {
        ans[n]=fac(n);
        printf("%.2f",ans[n]);
        printf("\n");
    }
}


int main()
{

printf("Function:\n1.n\n2.n^3\n3.2^n\n4.(3/2)^n\n5.ln(n)\n6.lg(n)\
n7.square root lgn\n8.n*2^n\n9.e^n\n10.2^(log(n))\n11.n!");
   printf("\nEnter your choice:");
   int ch;
   scanf("%d", &ch);
   if(ch==1)
   {
      f1();
   }
   else if(ch==2)
   {
      f2();
   }
   else if(ch==3)
   {
```

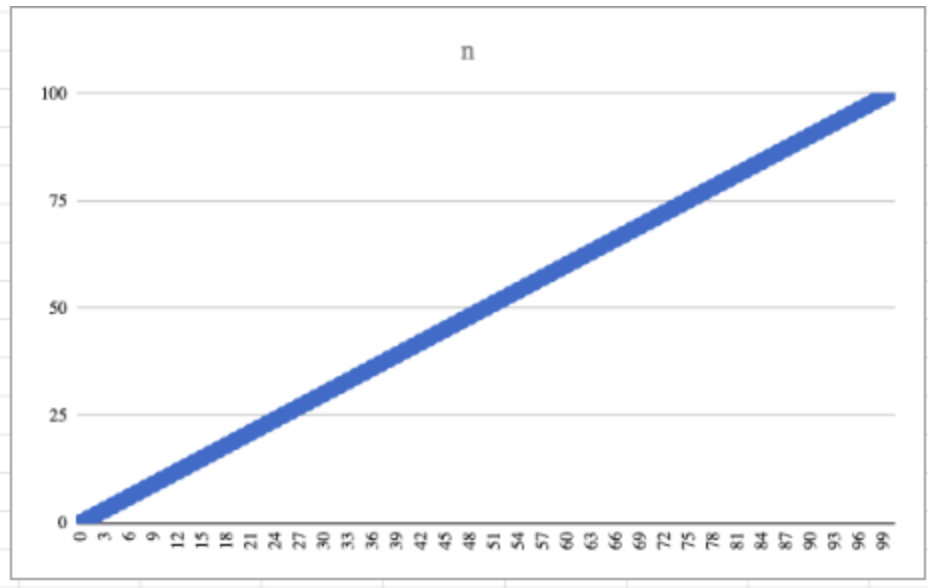
```
    f3();
}
else if(ch==4)
{
    f4();
}
else if(ch==5)
{
    f5();
}
else if(ch==6)
{
    f6();
}
else if(ch==7)
{
    f7();
}
else if(ch==8)
{
    f8();
}
else if(ch==9)
{
    f9();
}
else if(ch==10)
{
    f10();
}
else if(ch==11)
{
    f11();
}
```

	}
RESULT (SNAPSHOT):	

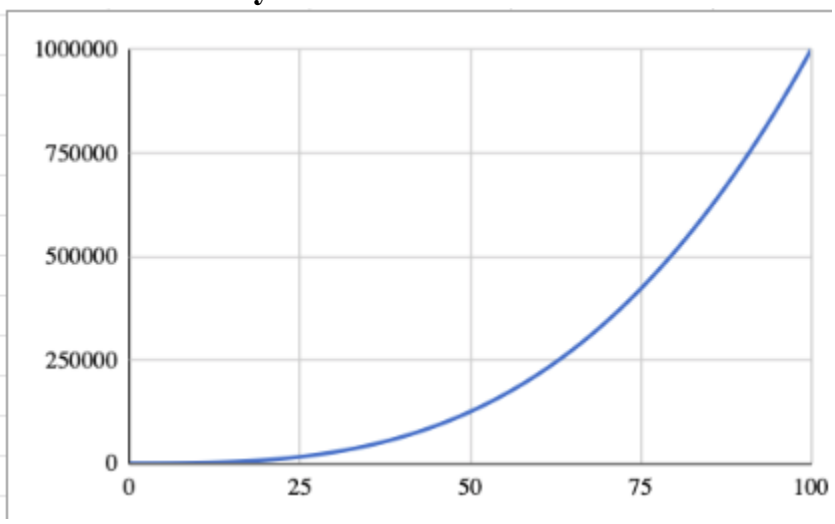
```
Function:
1.n
2.n^3
3.2^n
4.(3/2)^n
5.ln(n)
6.lg(n)
7.square root lgn
8.n*2^n
9.e^n
10.2^(log(n))
Enter your choice:2
0  0
1  1
2  8
3  27
4  64
5  125
6  216
7  343
8  512
9  729
10  1000
11  1331
12  1728
13  2197
14  2744
15  3375
16  4096
17  4913
18  5832
19  6859
20  8000
21  9261
22  10648
23  12167
24  13824
25  15625
26  17576
27  19683
28  21952
```

```
Function:
1.n
2.n^3
3.2^n
4.(3/2)^n
5.ln(n)
6.lg(n)
7.square root lgn
8.n*2^n
9.e^n
10.2^(log(n))
Enter your choice:5
1 0.00
2 0.69
3 1.10
4 1.39
5 1.61
6 1.79
7 1.95
8 2.08
9 2.20
10 2.30
11 2.40
12 2.48
13 2.56
14 2.64
15 2.71
16 2.77
17 2.83
18 2.89
19 2.94
20 3.00
21 3.04
22 3.09
23 3.14
24 3.18
25 3.22
26 3.26
27 3.30
```

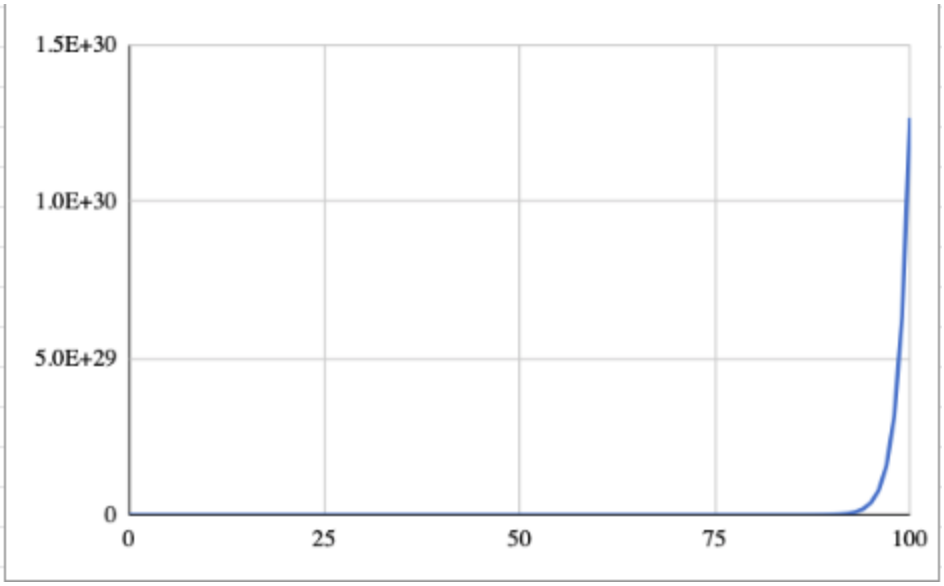
Graphs:



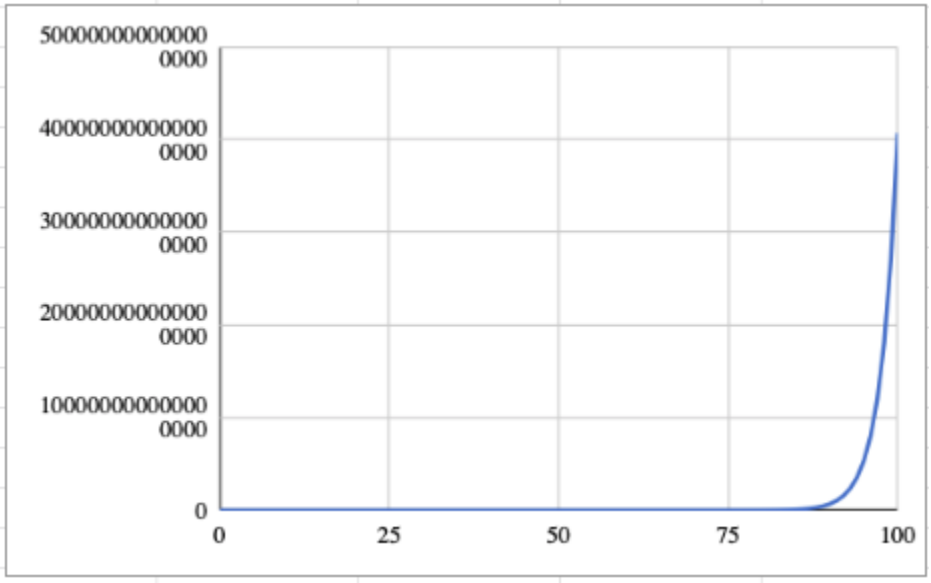
This a n function which gives a linear graph i.e as n increases the value of function increases linearly.



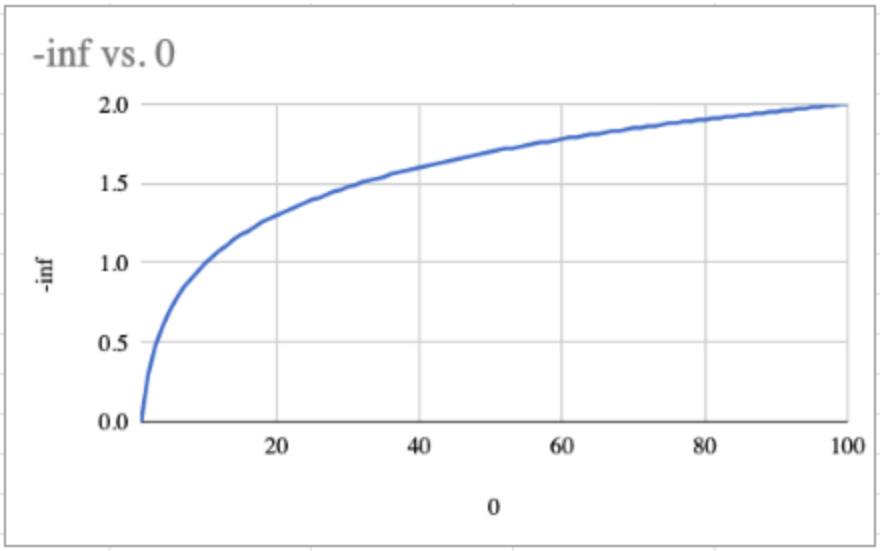
This a 2^n function which gives a exponential graph i.e as n increasing the value of function increases exponentially.



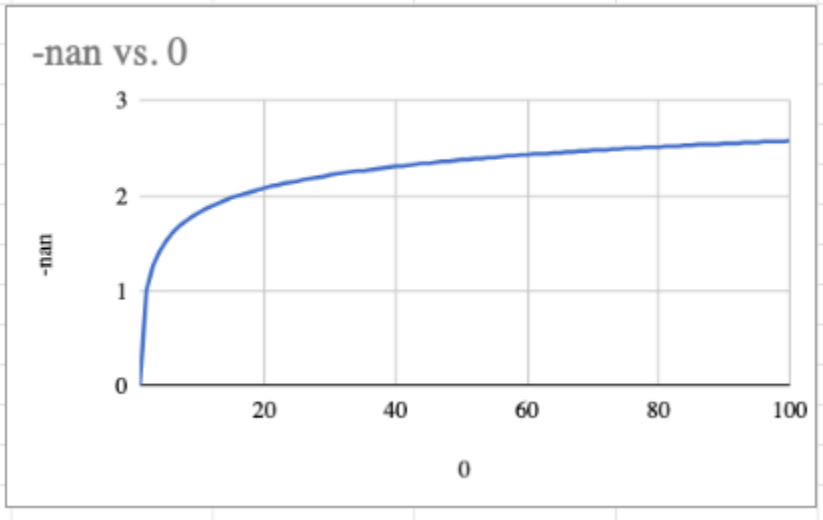
This a (3/2)^n function which gives an exponential graph i.e as n increasing the value of function increases exponentially.



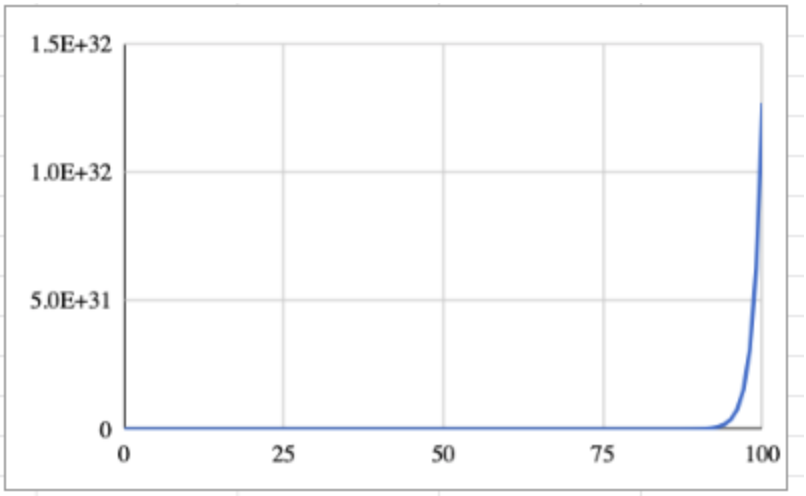
This a ln(n) function which gives an exponential graph i.e as n increasing the value of function increases exponentially.



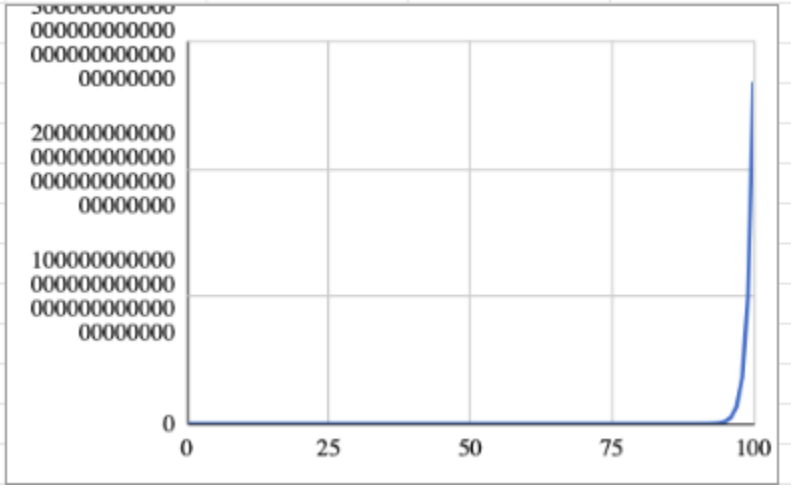
This a lg(n) function which gives a logarithmic graph i.e as n increasing the value of function increases logarithmically.



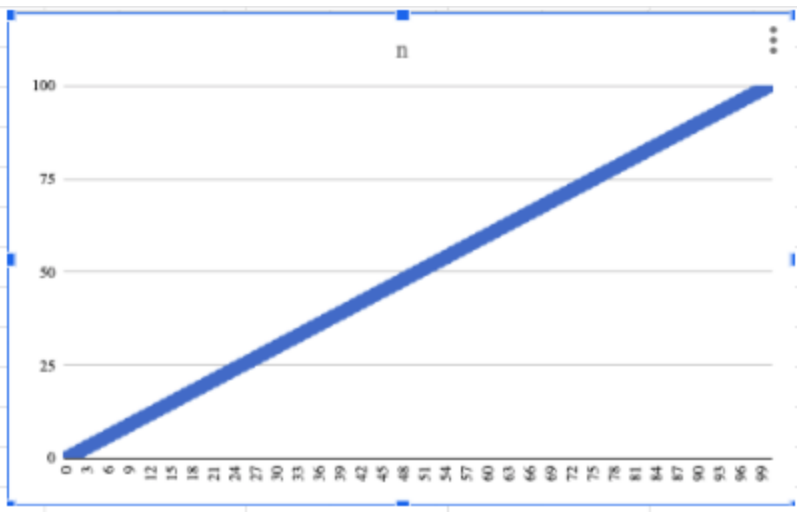
This a square root lgn function which gives a logarithmic graph i.e as n increasing the value of function increases logarithmically.



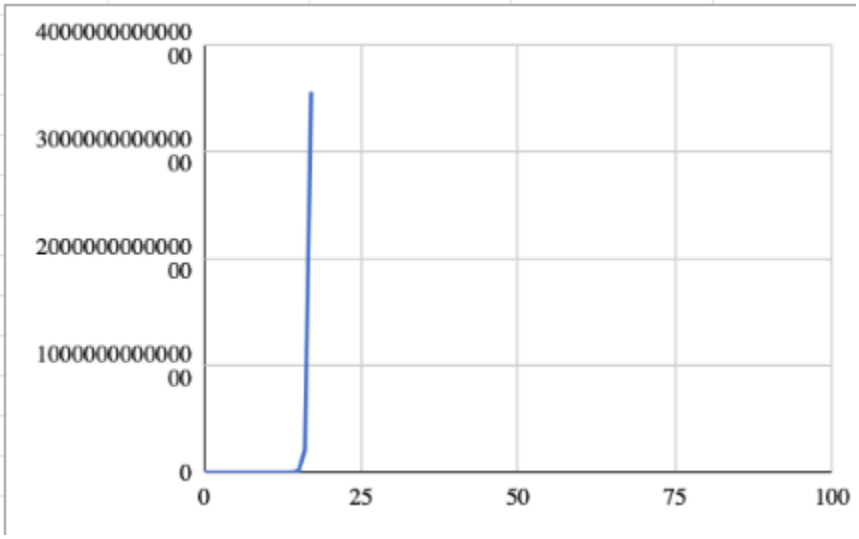
This a n*2^n function which gives a exponential graph i.e as n increasing the value of function increases exponentially.



This an e^n function which gives an exponential graph i.e as n increasing the value of function increases exponentially.



This a 2^(log(n)) function which gives a linear graph i.e as n increases the value of function increases linearly.



This a n! function which gives an exponential graph i.e as n increasing the value of function increases exponentially.

CONCLUSION:	I understood the algorithm behind coding and the use of graph plotting.