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| **BATCH** | C |
| **SUBJECT** | DAA |
| **EXPERIMENT NO :** | 1A |
| **DATE OF PERFORMANCE** | 30-01-2023 |
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| **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. |
| **ALGORITHM** | 1. Declare floating variables a1,a2,a3,a4,a5,a6,a7,a8,a9,a10. 2. Assign a function to each variable –   a1=pow(3.0,i)/pow(2.0,i);  a2=pow(i,3);  a3=pow(log2(i),2);  a4=log2(factorial(i));  a5=pow(2,(pow(2,i)));  a6=i;  a7=log(log(i));  a8=log2(i);  a9=i\*(pow(2,i));  a10=pow(i,(log2(log2(i))));   1. Create a floating variable fact and assign it the factorial function.   float fact=factorial(i);   1. Print the results of all these functions for numbers 1 to 100. 2. Paste the result in an Excel sheet and create graphs for all functions. |
| **PROGRAM** | #include<stdio.h>  #include<math.h>  float factorial(int n)  {  float ans=1;  for(n;n>=1;n--)  {  ans=ans\*n;  }  return ans;  }  void main()  {  float a1,a2,a3,a4,a5,a6,a7,a8,a9,a10;  int i;  for(i=0;i<=100;i++)  {  a1=pow(3.0,i)/pow(2.0,i);  a2=pow(i,3);  a3=pow(log2(i),2);  a4=log2(factorial(i));  a5=pow(2,(pow(2,i)));  a6=i;  a7=log(log(i));  a8=log2(i);  a9=i\*(pow(2,i));  a10=pow(i,(log2(log2(i))));  float fact=factorial(i);  printf("\n%d\t%.3f\t%.3f\t%.3f\t%.3f\t%.3f\t%.3f\t%.3f\t%.3f\t%.3f\t%.3f\t%.3f",i,a1,a2,a3,a4,a5,a6,a7,a8,a9,a10,fact);  }  } |
| **RESULT ( SNAPSHOT):**   1. **(3/2)^n** 2. **n^3** 3. **(lg(n))^2** 4. **lg(n!)** 5. **2^(2^n)** 6. **n** 7. **ln(ln(n))** 8. **lg(n)** 9. **n\*(2^n)** 10. **n^(lg(lg(n)))** 11. **n!** | |

**CONCLUSION :**

With the help of this experiment, I was able to understand and implement various functions graphically and was also able to note the changes in the values of the functions when input is varied from 0 to 100.