/\*Trapizoidal rule\*/

#include<stdio.h>

#include<math.h>

float f(float); //Function delaration

int main()

{

float up,lo,h,y0,yn,in,z,s=0,result,y; //Variable delaration

int i;

//User input

printf("Enter the upper limit\n");

scanf("%f",&up);

printf("Enter the lower limit\n");

scanf("%f",&lo);

printf("Enter the interval\n");

scanf("%f",&in);

h=(up-lo)/in;

y0=f(lo); //First ordinate

printf("%f\n",y0);

yn=f(up); //Second ordinate

printf("%f\n",yn);

z=lo+h;

for(i=1;i<(in);i++) //Loop upto n-1

{

y=f(z);

printf("%f\n",y);

s=s+y;

z=z+h;

}

result=(h/2)\*((y0+yn)+2\*s); //Calculating final result

printf("The result of trapizoidal rule is %.5f\n",result);

return 0;

}

float f(float x) //Function

{

return (tan(exp(x)));

}

