**5 лаба (метод деления отрезка по полам)**

#include <iostream.h>

#include <iomanip.h>

#include <math.h>

#include <stdio.h>

#include <stdlib.h>

double X;

int a,b;

double f(double x)

{

return pow(x,2)+5\*cos(x)-3;

}

double MD(double A,double B,double h)

{

double e=0.0001,x[3],y[3],v,X;

x[0]=A;

x[1]=B;

y[0]=f(x[0]);

H: x[2]=(x[0]+x[1])/2;

y[2]=f(x[2]);

v=y[0]\*y[2];

if(v>0)

{

x[0]=x[2];

y[0]=y[2];

}

else

{

x[1]=x[2];

y[1]=y[2];

}

if((x[1]-x[0])>e) goto H;

X=(x[0]+x[1])/2;

return X;

}

int main()

{

double h,m,z[100],y,u;

int i;

cout<<"m=";

cin>>m;

cout<<"a=";

cin>>a;

cout<<"b=";

cin>>b;

h=(b-a)/m;

X=a;

printf("X\t\tY\n");

y=f(X);

printf("%5.4f\t\t%5.4f\n",X,y);

X+=h;

u=y;

for(i=1;X<=b;)

{

y=f(X);

printf("%5.4f\t\t%5.4f\n",X,y);

if((u>0 && y<0) || (u<0 && y>0))

{

z[i]=MD(X-h,X,h);

i++;

}

X+=h;

u=y;

}

u=i-1;

for(i=1;i<=u;i++) cout<<endl<<"X"<<i<<"="<<z[i]<<endl;

return 0;

}