3 лаба (общего вида pol)

#include <iostream.h>

#include <iomanip.h>

#include <math.h>

#include <stdio.h>

#include <stdlib.h>

double countF(double x)

{

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

}

int main()

{int n,m,i,j,k,s;

double X[100],Y[100],Y2[100],A[100][100],c[100],pog[100],d,a,b,f;

cout<<"a=";

cin>>a;

cout<<"b=";

cin>>b;

cout<<"n=";

cin>>n;

cout<<"m=";

cin>>m;

cout<<"\nZnacenie x,y:"<<endl;

for(i=1;i<=m;i++)

{

X[i]=a+(i-1)\*(b-a)/(m-1);

Y[i]=countF(X[i]);

printf("X[%d]=%3.2f Y[%d]=%f\n",i,X[i],i,Y[i]);

}

for(k=1;k<=n;k++)

{

A[k][1]=1;

int i=0;

for(s=2;s<=n;s++)

{

i++;

if(i==k) i++;

d=X[k]-X[i];

A[k][s]=A[k][s-1]/d;

for(j=s-1;j >=2;j--) A[k][j]=(A[k][j-1]-A[k][j]\*X[i])/d;

A[k][1]=-A[k][1]\*X[i]/d;

}

}

for(i=1;i<=n;i++)

{

c[i]=0;

for(k = 1;k <= n;k++) c[i]=c[i]+A[k][i]\*Y[k];

}

for(j=1;j<=21;j++)

{

X[j]=a+(j-1)\*(b-a)/20;

Y[j]=countF(X[j]);

}

//Y2[j]=c[1]+X[j]\*(c[2]+X[j]\*(c[3]+X[j]\*(c[4]+X[j]\*c[5])));

for(j=1;j<=21;j++){

for(i=1;i<=n;i++)

{

f=c[n-1]+X[j]\*c[n];

for(s=2;s<=n-1;s++) f=c[n-s]+X[j]\*f;

Y2[j]=f;

pog[j]=fabs(Y[j]-Y2[j]);

} }

cout<<endl; printf("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

printf("| X: | Y: | Y aproksimacii: | Pogresnosti: |\n");

printf("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

for(i=1;i<=21;i++) printf("X[%-2d]=%3.2f Y[%-2d]=%7.6f Y2[%-2d]=%8.7f pog[%-2d]=%7.6f\n",i,X[i],i,Y[i],i,Y2[i],i,pog[i]);

return 0;

}