#include "stdio.h"

#include "conio.h"

#include "math.h"

float a1,a2,a3,a4;

Inputdata()

{

printf("Nhap cac he so cua phuong trinh: ");

scanf("%f\n %f\n %f\n %f\n",&a1,&a2,&a3,&a4);

}

float f(float x)

{

float p;

p = a1\*x\*x\*x + a2\*x\*x + a3\*x +a4;

return((float) p);

}

float f1(float x)

{

float p;

p = 3\*a1\*x\*x + 2\*a2\*x + a3;

return((float) p);

}

float f2(float x)

{

float p;

p = 6\*a1\*x + 2\*a2;

return((float) p);

}

float kiemtra(x,y)

float x,y;

{

float z,t,p;

for(z=x;z<y;z=z+0.01)

{

if (f1(z)\*f1(z+0.01)>0) t=1;

else t=0;

}

if(f(x)\*f(y)<0 && t==1) p=1;

else p=0;

return((float) p);

}

main()

{

float a,b,e,x0,x1,d,err,m;

Inputdata();

printf("nhap gia tri e, a, b : "); scanf("%f %f %f",&e,&a,&b);

if(kiemtra(a,b) == 0) printf("(%f;%f) khong la khoang ly nghiem",a,b);

else

{

printf("(%f;%f) la khoang ly nghiem",a,b);

if(f1(a) > f1(b)) m=f1(b);

else m = f1(a);

if(f2(a) > 0) { d = b; x0 = a; }

else { d = a; x0 = b; }

err = 1000;

while(err>e)

{

x1 = x0 - f(x0)\*(x0-d)/(f(x0) - f(d));

err = f(x1)/m;

x0=x1;

}

printf("\n nghiem cua phuong trinh la %f",x1);

}

}