#include <iostream>

using namespace std;

int main()

{

cout<<"Jacobi's Iteration Method................................................";

cout<<endl<<"Enter equation coeffecients(ax+by+cz+d=0) form..............";

cout<<endl<<"Considering equation 1:";

double eq1[4],eq2[4],eq3[4];

cout<<endl<<"Coefficient for x:";

cin>>eq1[0];

cout<<endl<<"Coefficient for y:";

cin>>eq1[1];

cout<<endl<<"Coefficient for z:";

cin>>eq1[2];

cout<<endl<<"Value of constant:";

cin>>eq1[3];

cout<<endl<<"Considering equation 2:";

cout<<endl<<"Coefficient for x:";

cin>>eq2[0];

cout<<endl<<"Coefficient for y:";

cin>>eq2[1];

cout<<endl<<"Coefficient for z:";

cin>>eq2[2];

cout<<endl<<"Value of constant:";

cin>>eq2[3];

cout<<endl<<"Considering equation 3:";

cout<<endl<<"Coefficient for x:";

cin>>eq3[0];

cout<<endl<<"Coefficient for y:";

cin>>eq3[1];

cout<<endl<<"Coefficient for z:";

cin>>eq3[2];

cout<<endl<<"Value of constant:";

cin>>eq3[3];

double tempx,tempy,tempz,temp[3];

tempx=-1\*(eq1[3]/eq1[0]);

tempy=-1\*(eq2[3]/eq2[1]);

tempz=-1\*(eq3[3]/eq3[2]);

cout<<endl<<"Tempx:"<<tempx;

cout<<endl<<"Tempy:"<<tempy;

cout<<endl<<"Tempz:"<<tempz;

for(int i=0;i<50;i++)

{

temp[0]=(-1\*(eq1[3]+(tempy\*eq1[1])+(tempz\*eq1[2])))/eq1[0];

temp[1]=(-1\*(eq2[3]+(tempx\*eq2[0])+(tempz\*eq2[2])))/eq2[1];

temp[2]=(-1\*(eq3[3]+(tempy\*eq3[1])+(tempx\*eq3[0])))/eq3[2];

tempx=temp[0];

tempy=temp[1];

tempz=temp[2];

cout<<endl<<"Tempx:"<<tempx;

cout<<endl<<"Tempy:"<<tempy;

cout<<endl<<"Tempz:"<<tempz;

}

cout<<endl<<"Final roots are:";

cout<<endl<<"X="<<tempx;

cout<<endl<<"Y="<<tempy;

cout<<endl<<"Z="<<tempz;

return 0;

}