#include <iostream>

#include <cmath>

#include <iomanip>

using namespace std;

#define eps 1e-3

double g(double x1, double x2)

{

return x1 + x2 - 5.0;

}

void AugmentedLagrangeMultiplier(double r,double lamda){

double x1 = (10 \*r\* r + 60\*r -6\*lamda -r\*lamda) / ((14 + 5 \* r) \* (12 + 2 \* r));

double x2 = (20\*r-2\*lamda)/(14+5\*r);

cout << setw(15) << "lamda" << setw(15) << "r" << setw(15) << "x1" << setw(15) << "x2" << setw(15) << "h" << endl;

cout << setw(15) << lamda << setw(15) << r << setw(15) << x1 << setw(15) << x2 << setw(15) << g(x1, x2) << endl;

while (abs(g(x1, x2)) >= eps)

{

lamda = lamda + 2 \* r \* g(x1, x2);

x1 = (10 \* r \* r + 60\*r -6\*lamda -r\*lamda) / ((14 + 5 \* r) \* (12 + 2 \* r));

x2 = (20\*r-2\*lamda)/(14+5\*r);

cout << setw(15) << lamda << setw(15) << r << setw(15) << x1 << setw(15) << x2 << setw(15) << g(x1, x2);

cout << endl;

}

}

int main()

{

double r=1,lamda=0.0;

AugmentedLagrangeMultiplier(r,lamda);

}

