标题：A、gpa | 时间限制：1 秒 | 内存限制：256M

Kanade selected n courses in the university. The academic credit of the i-th course is s[i] and the score of the i-th course is c[i].
At the university where she attended, the final score of her is $\frac{\sum s[i]c[i]}{\sum s[i]}$

Now she can delete at most k courses and she want to know what the highest final score that can get.

输入描述:
The first line has two positive integers n,k

The second line has n positive integers s[i]

The third line has n positive integers c[i]

输出描述:
Output the highest final score, your answer is correct if and only if the absolute error with the standard answer is no more than 10^{-5}

备注:
1≤ n≤ 10^5
0≤ k < n
1≤ s[i],c[i] ≤ 10^3

示例 1
输入
3 1
1 2 3
3 2 1
输出
2.33333333333
说明
Delete the third course and the final score is $\frac{2*2+3*1}{2+1}=\frac{7}{3}$

标题：B、div | 时间限制：3 秒 | 内存限制：256M

We define a number n is good if and only if there exists x ∈ $[n^2+1,n^2+2n]$ satisfy $x|n^4$
Give a positive number m , you need to find the smallest good number no less than m

输入描述:
The first line has a positive integer m

输出描述:
Output the smallest good number no less than m

备注:
1≤ m≤ 10^{1000}

示例 1
输入
4
输出
6

标题：C、grf | 时间限制：4 秒 | 内存限制：512M

Kanade has a undirected graph of n nodes and m edges without multiple edges and self loops.And let V denote the set of its vertex and E denote the set of its edges

For every subset S of E , let k(S) denote the number of connected component of graph <V,S>

And now you need to calculate $\sum_{S\subseteq E} k(S)^{k(S)-1}$

You only need to output the answer module 998244353

输入描述:

The first line has two integers n,m

Then there are n lines, each line has two integers x,y denote the edge (x,y)

输出描述:

Output the answer module 998244353

备注:

1 ≤ n≤ 19

0≤ m≤ (n-1)n/2

1≤ x,y ≤ n

示例 1

输入

3 3

1 2

2 3

1 3

输出

19

标题：D、inv | 时间限制：2 秒 | 内存限制：256M

Kanade has an even number n and a permutation b of all of the even numbers in [1,n]
Let a denote an array [1,3,5....n-1] , now you need to find a permutation of [1,n] satisfy both a and b are subsequence of it and minimize the number of inverse pair of it.

输入描述:
The first line has a positive even integer n

The second line has n/2 positive even integers b[i]

输出描述:
Output the number of inverse pair of the permutation you find.

备注:
1≤ n≤ $2*10^5$

示例 1
输入
6
2 6 4
输出
2

说明
[1,2,3,5,6,4]

标题：E、room | 时间限制：1 秒 | 内存限制：256M

Nowcoder University has 4n students and n dormitories (Four students per dormitory). Students numbered from 1 to 4n.
And in the first year, the i-th dormitory 's students are (x1[i],x2[i],x3[i],x4[i]), now in the second year, Students need to decide who to live with.
In the second year, you get n tables such as (y1,y2,y3,y4) denote these four students want to live together.
Now you need to decide which dormitory everyone lives in to minimize the number of students who change dormitory.

输入描述:
The first line has one integer n.

Then there are n lines, each line has four integers (x1,x2,x3,x4) denote these four students live together in the first year

Then there are n lines, each line has four integers (y1,y2,y3,y4) denote these four students want to live together in the second year

输出描述:
Output the least number of students need to change dormitory.

备注:
1<=n<=100

1<=x1,x2,x3,x4,y1,y2,y3,y4<=4n

It's guaranteed that no student will live in more than one dormitories.

示例 1
输入
2
1 2 3 4
5 6 7 8
4 6 7 8
1 2 3 5
输出
2

说明
Just swap 4 and 5

标题：F、take | 时间限制：1 秒 | 内存限制：256M

Kanade has n boxes , the i-th box has p[i] probability to have an diamond of d[i] size.
At the beginning , Kanade has a diamond of 0 size. She will open the boxes from 1-st to n-th. When she open a box,if there is a diamond in it and it's bigger than the diamond of her , she will replace it with her diamond.
Now you need to calculate the expect number of replacements.
You only need to output the answer module 998244353.
Notice: If x%998244353=y*d %998244353 ,then we denote that x/y%998244353 =d%998244353

输入描述:
The first line has one integer n.

Then there are n lines. each line has two integers p[i]*100 and d[i].

输出描述:
Output the answer module 998244353

备注:
1<= n <= 100000

1<=p[i]*100 <=100

1<=d[i]<=10^9

示例 1
输入
3
50 1
50 2
50 3
输出
499122178

标题：G、max | 时间限制：1 秒 | 内存限制：256M

Give two positive integer c, n. You need to find a pair of integer (a,b) satisfy 1<=a,b<=n and the greatest common division of a and b is c.And you need to maximize the product of a and b

输入描述:
The first line has two positive integer c,n

输出描述:
Output the maximum product of a and b.

If there are no such a and b, just output -1

备注:
1<=c,n<=10^9

示例 1
输入
2 4
输出
8

说明
a=2,b=4

标题：H、subseq | 时间限制：2 秒 | 内存限制：256M

Kanade has an array a[1..n] , she define that an array b[1..m] is good if and only if it satisfy the following conditions:
1<=b[i]<=n
b[i]<b[i+1] for every i between 1 and m-1
a[b[i]] < a[b[i+1]] for every i between 1 and m-1
m>0
Now you need to find the k-th smallest lexicographically good array.

输入描述:
The first line has two integer n,k

The second line has n integer a[i]

输出描述:
If there is no solution, just only output -1, else output two lines, the first line has an integer m, the second line has m integer b[i]

备注:
1<=n <= 10^5

1<=k<=10^(18)

1<=a[i]<=10^9

示例 1
输入
3 2
1 2 3
输出
2
1 2

示例 2
输入
3 1000000000
1 2 3
输出
-1

标题：I、vcd | 时间限制：2 秒 | 内存限制：256M

Kanade has an infinity set H:{ {(a,b)|a≥ x,b∈ [y_1,y_2]} |y_1∈R,y_2∈R,x∈R,y_1≤y_2}
A point set S is good if and only if for each subset T of S there exist h in H satisfy $h \cap S = T$

Now kanade has n distinct points and she want to know how many non-empty subset of these points is good.
You need to output the answer module 998244353

输入描述:
The first line has one integer n

Then there are n lines,each line has two integers x,y denote a point (x,y)

输出描述:
Output the answer module 998244353

备注:
1<=n<=10^5

1<=x, y<=10^9

示例 1
输入
3
1 1
2 2
3 3
输出
6

标题：J、plan | 时间限制：1 秒 | 内存限制：256M

There are n students going to travel. And hotel has two types room:double room and triple room.
The price of a double room is p2 and the price of a triple room is p3
Now you need to calulate the minimum total cost of these students.

输入描述:
The first line has three integers n, p2, p3

输出描述:
Output the minimum total cost.

备注:
1<=n<=10^9

1<=p2,p3<=10^9

示例 1
输入
4 2 3
输出
4
示例 2
输入
5 1 3
输出
3