Question from HackerRank

A company can make *at most* k of n available trades. Each  available trade has the following properties:

* p: A floating-point number denoting the trade's probability of being profitable.
* x: A floating-point number denoting the trade's potential profit.
* y: A floating-point number denoting the trade's potential loss, which has a probability of .

Given the values of , , and , , and  for each trade , find and print the maximum expected amount of money the company can make by performing *at most*  of the  trades.

**Input Format**

The first line contains two space-separated integers denoting the respective values of  (the number of trades available) and  (the maximum number of trades allowed).   
The second line contains  space-separated floating-point numbers describing the respective values of , where each  denotes the probability that the  transaction will result in a profit.   
The third line contains  space-separated floating-point numbers describing the respective values of , where each  denotes the possible profit of the  transaction.   
The fourth line contains  space-separated floating-point numbers describing the respective values of , where each  denotes the possible loss of the  transaction.

**Constraints**

* All , , and  are floating-point numbers scaled to exactly one decimal place (i.e.,  format).

**Output Format**

Print the maximum expected amount of money that can be made by performing at most  of the  available trades. Scale your answer to exactly  decimal places (i.e.,  format).

**Sample Input 0**

4 2

0.5 0.5 0.5 0.5

4.0 1.0 2.0 3.0

4.0 0.5 1.0 1.0

**Sample Output 0**

1.50

**Explanation 0**   
There are  transactions available and we can perform *at most*  of them. We also know that the probability that each transaction results in a profit is . If the third and the fourth transactions are performed, the expected amount of money made from these transactions is: ; because this is greater than all the other possibilities we could calculate, we print  as our answer (recall that we must scale our answer to two decimal places).

**Sample Input 1**

2 2

0.9 0.5

1.0 0.5

100.0 0.4

**Sample Output 1**

0.05

**Explanation 1**   
There are  transactions available and we can perform *at most*  of them. The probability that the first transaction is profitable is , while the probability that the second transaction is profitable is . We can maximize our potential profit by only performing the second transaction, which has an expected value of ; thus, we print  as our answer.