Dropping tests

Time Limit: 1000MS **Memory Limit:** 65536K
Total Submissions: 13597 **Accepted:** 4775

Description

In a certain course, you take n tests. If you get a_i out of b_i questions correct on test i, your cumulative average is defined to be

$$100 \cdot \frac{\sum_{i=1}^{n} a_i}{\sum_{i=1}^{n} b_i}.$$

Given your test scores and a positive integer k, determine how high you can make your cumulative average if you are allowed to drop any k of your test scores.

Suppose you take 3 tests with scores of 5/5, 0/1, and 2/6. Without dropping any tests, your cumulative average is $100 \cdot \frac{5+0+2}{5+1+6} = 50$. However, if you drop the third test, your cumulative average becomes $100 \cdot \frac{5+0}{5+1} \approx 83.33 \approx 83$.

Input

The input test file will contain multiple test cases, each containing exactly three lines. The first line contains two integers, $1 \le n \le 1000$ and $0 \le k < n$. The second line contains n integers indicating a_i for all i. The third line contains n positive integers indicating b_i for all i. It is guaranteed that $0 \le a_i \le b_i \le 1,000,000$. The end-of-file is marked by a test case with $n = k = 0$ and should not be processed.

Output

For each test case, write a single line with the highest cumulative average possible after dropping *k* of the given test scores. The average should be rounded to the nearest integer.

Sample Input

```
3 1
5 0 2
5 1 6
4 2
1 2 7 9
5 6 7 9
0 0
```

Sample Output

```
83
100
```

Hint

To avoid ambiguities due to rounding errors, the judge tests have been constructed so that all answers are at least 0.001 away from a decision boundary (i.e., you can assume that the average is never 83.4997).

Source

Stanford Local 2005

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