

VI BXComp

6th Freshmen's Programming Championship of Information Systems 2016

6th Stage – Challenge 2

Minimum Cost

John is the owner of a tire factory and he wants to buy rubber for his production line. His supplier for this product wants to increase the number of clients. Therefore, he defines the final purchase price depending on the number of clients buying it, using the following business rule: the final price for a certain amount of rubber that a single client buys is larger than the final price for the same amount of rubber purchased by a greater number of customers.

A piece of rubber, represented by i , has a cost, represented by c_i . If a customer has already purchased x pieces of rubber, then the price P of the next piece i to be purchased is increased according to the following formula:

$$P = (x + 1) \times c_i$$

John wants to pay the least to purchase the rubber. Considering that rubber is a base product for many other factories, he made a deal with his supplier: if John manages to invite other factories to be his supplier's clients, then John might buy the amount of rubber he needs cheaper.

Cost optimization is one of LexisNexis' business competences, and it has trained a lot of people to become specialist in such an area. You are a member of a team in LexisNexis that will help John elaborating a program to determine the optimized cost in the purchase of some amount of rubber.

Task

Your task consists of implementing a program that, given an amount of rubber needed, the number of factories and the price of each piece of rubber, distribute these pieces costs among the factories in order to obtain the lowest cost to purchase them. The purchase order of the rubber's pieces can be changed to obtain the lowest final price.

Input

The input consists of T test cases, with T defined as $0 < T \leq 100$ in the first line. Each test case has two lines: i) the first one contains two positive integers N and K , $0 < N, K \leq 100$, separated by a single space, which represents, respectively, the number of rubber pieces to be

bought and the number of factories; ii) the second one contains **N** positive integers, separated by a single space, representing the cost of each rubber piece.

Output

For each test case, the program must print a line with the minimum cost of the purchase. After the last test case, there must be a line break.

Input Example

```
2
3 3
2 5 6
3 2
2 5 6
```

Output Example

```
13
15
```