Problem G
Alien Substance

Time limit: 1 second
Memory limit: 2048 megabytes

Problem Description

In a particular extraterrestrial civilization, a mysterious substance forms the basis of all items used by alien beings. What sets this substance apart is its unique property: its weight is equal to the square of its mass. In simpler terms, transporting a substance with a mass of a from the moon to Earth requires a^2 units of energy.

Each of the items used by alien beings can also be divided into smaller items without changing its mass, and we can restore the items from the smaller items. A division operation can split a single item into two new items, with the sum of their masses equal to the original item's mass. The material of the new items remains the same as the original item. It's crucial to note that the masses of the new items must be positive integers.

Now, your boss has bought n items, numbered from 1 to n, from the alien beings on the moon and wants to transport them to Earth. The masses of the items are $a_1, \ldots, a_n$, respectively. Since some of them are really massive, your boss wants to divide some items into smaller items to reduce the energy consumption. He is allowed to perform at most p division operations. However, this division process consumes energy as well. Each division operation on items made of the material of item i consumes c_i units of energy.

The total energy consumption is defined as the sum of the energy consumed during the division process and the transportation energy for each item. In other words, the total energy consumption is $s + \sum_{i=1}^{m} \hat{a_i}^2$) assuming the total cost of division is s, and it eventually produces m items of masses $\hat{a_1}, \ldots, \hat{a_m}$.

For example, your boss bought two items: $a_1 = 5$,$a_2 = 9$, $c_1 = 2$, $c_2 = 5$. If he is only allowed to perform one division operation, he may divide item 2 into two smaller items of masses 4 and 5. And then the total energy consumption is $5 + 5^2 + 4^2 + 5^2 = 5 + 25 + 16 + 25 = 71$.

Please write a program to compute the minimum total energy consumption when n items are given with their masses $a_1, \ldots, a_n$ and energy consumption $c_1, \ldots, c_n$ of division operation.

Input Format

The first line contains two integers n and p representing the number of items and the number of division operations allowed. The second line contains n integers $a_1, a_2, ...a_n$ representing the masses of items. The third line contains n integers $c_1, c_2, ...c_n$ indicating the energy consumption of division operation on the material of each item.

Output Format

Output a single integer representing the minimum total energy consumption.

Technical Specification

- $1 \leq n \leq 2 \times 10^5$
- $1 \leq p \leq 2 \times 10^5$
- $1 \leq a_i \leq 2 \times 10^5$ for $1 \leq i \leq n$
- $0 \leq c_i \leq 10^{12}$ for $1 \leq i \leq n$

Sample Input 1

```
4 1
5 1 3 8
6 15 2 30
```

Sample Output 1

```
93
```

Sample Input 2

```
3 5
2 3 5
100 100 100
```

Sample Output 2

```
38
```