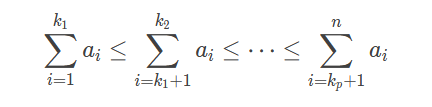
**Division**

**Problem Description**

In 2048, in the examination room of the 30th CSP certification, Xiaoming, as a contestant, opened the first question. The sample of this problem has n groups of data, numbered from 1 to n, and the scale of data i is ai.

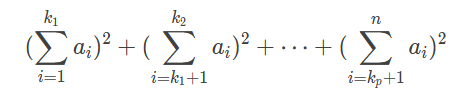
Xiaoming designed a violent program for this problem. For a set of data of size u, the **running time** of the program is u2. However, after the program has run a set of data of size u, it will run an error on any one set of data of size **less than** u. The ai in the sample isn’t necessarily incremented, but Xiaoming wants to run the example correctly without modifying the program, so he decides to use a very primitive solution: Divide all the data into segments with **contiguous** serial numbers, and then merge the data in the same segment into new data whose size is equal to **the sum of the sizes** of the original data in the segment. Xiaoming will let the size of the new data increase.

In other words, Ming needs to find some cut-off points 1 ≤ k1 < k2 <... < kp < n, such that



Note that p can be 0 and at that time, k0 = 0, that is, Xiaoming can run all the data together.

Xiaoming wants the running time to be minimized while running the sample correctly, that is, to **minimize**



Xiaoming finds this problem very interesting and asks for your advice: Given n and ai, please find the minimum running time of Xiaoming’s program under the optimal division scheme.

**Input**

**Due to the large data range of the question, ai of some test points will be generated in the program.**

Two integers, n and type, are in the first line. See the program description for the meaning of n, and type denotes the type of input.

1. If type = 0, the ai of the test point is **given directly**. The following input file: n space-separated integers ai in the second line, indicating the size of each group of data.

2. If type = 1, ai for this test point will be **specially generated**, as described below. The following input file: Six space-separated integers x, y, z, b1, b2, m in the second line. In the next m lines, line i (1 ≤ i ≤ m) contains three space-separated positive integers pi, li, ri.

For test points 23~25 with type = 1, ai is generated as follows:

Given integers x, y, z, b1, b2, m, and m triples (pi, li, ri).

Guarantee n ≥ 2. If n > 2, then ∀ 3 ≤ i ≤ n, bi = (x × bi−1 + y × bi−2 + z) mod 230.

Ensure that 1 ≤ pi ≤ n and pm = n. Let p0 = 0, then pi also satisfies that ∀ 0 ≤ i < m has pi < pi+1.

For all 1 ≤ j ≤ m, if the subscript value i (1 ≤ i ≤ n) satisfies pj−1 < i ≤ pj, then there is

ai = (bi mod(rj - lj + 1) ) + lj

**The above data generation method is only used to reduce the size of the input. Standard algorithms do not rely on this generation method.**

**Output**

Output one line with one integer, indicating the answer.

**Sample Input 1**

5 0

5 1 7 9 9

**Sample Output 1**

247

**Sample Input 2**

10 0

5 6 7 7 4 6 2 13 19 9

**Sample Output 2**

1256

**Sample Input 3**

10000000 1

123 456 789 12345 6789 3

2000000 123456789 987654321

7000000 234567891 876543219

10000000 456789123 567891234

**Sample Output 3**

4972194419293431240859891640

**Hint**

**[Explanation of Sample 1]**

The optimal division scheme is {5,1}, {7}, {9}, {9}. 5 + 1 ≤ 7 ≤ 9 ≤ 9, so the scheme is legal.

The answer is (5 + 1)2 + 72 + 92 + 92 = 247.

Although the division scheme {5}, {1}, {7}, {9}, {9} corresponds to a smaller running time than 247, it is not a set of legal schemes because 5 > 1.

Although the division scheme {5}, {1,7}, {9}, {9} is legal, the corresponding running time of this scheme is 251, which is larger than 247.

**[Explanation of Sample 2]**

The optimal division scheme is {5}, {6}, {7}, {7}, {4,6,2}, {13}, {19, 9}.

**[Data Range]**

| Test Point | n≤ | ai≤ | type= |
| --- | --- | --- | --- |
| 1~3 | 10 | 10 | 0 |
| 4~6 | 50 | 103 | 0 |
| 7~9 | 400 | 104 | 0 |
| 10~16 | 5000 | 105 | 0 |
| 17~22 | 5×105 | 106 | 0 |
| 23~25 | 4×107 | 109 | 1 |

For all the test points with type=0, make sure the final output answer ≤ 4×1018

All the test points satisfy: type ∈ {0,1}, 2 ≤ n ≤ 4×107,1 ≤ ai ≤ 109,1 ≤ m ≤ 105,1 ≤ li ≤ ri ≤ 109, 0 ≤ x,y,z, b1, b2,< 230.