Problem D. Mr. Panda and Circles

Mr. Panda likes creating and solving mathematical puzzles. One day, Mr. Panda came up with a puzzle while he was playing the following game with Mrs. Panda:

In a plane, there are M points $(0,0),(1,0),..,(M-2,0),(M-1,0)$ in a segment. You are also given N circles, the radius of i^{th} circle is R_i. In the game, you are allowed to put center of any circle into one of the M points without making circles overlap (that is, if the intersection of two circles has a positive area), and **ALL** circles should be used.

An arrangement of circles is considered as valid if every circle's center is in one of the M points. Mr. Panda wanted to know length of empty units which are not covered by any circle in the segment from $(0,0)$ to $(M-1,0)$.

Because there are too many arrangements, Mr. Panda only wanted to know $\sum L_i^2$ modulo $1,000,000,007$ where L_i is length of empty units in the i^{th} arrangement.

The puzzle has confused Mr. Panda for a long time. Luckily, Mr. Panda knows you are in this contest. Could you help Mr. Panda to solve the puzzle?

Input

The first line of the input gives the number of test cases, T. T test cases follow.

Each test case starts with a line consisting of two integers - N, the number of circles, and M, the number of points.

Then, a line consisting of N integer numbers follows, the i^{th} number R_i indicates radius of the i^{th} circle.

Output

For each test case, output one line containing "`Case #x: y`", where `x` is the test case number (starting from 1) and `y` is the number that Mr. Panda wants to know for the x^{th} input data set.

Limits

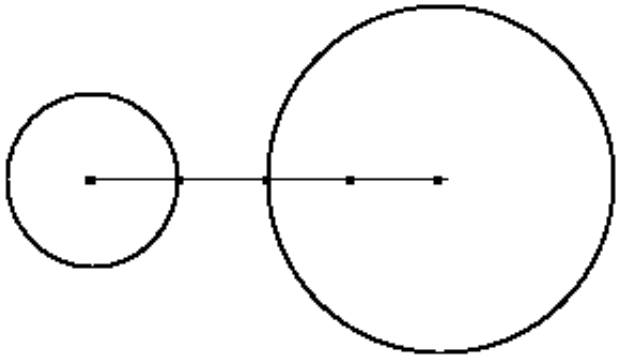
- $1 \le T \le 30$.
- $1 \le N \le 10^5$.
- $2 \le M \le 10^{18}$.
- $1 \le R_i \le 10^5$.

Example

standard input	standard output
5 3 6 1 1 1 2 5 1 2 2 6 1 2 3 2 1 1 1 1 10 50	Case #1: 12 Case #2: 2 Case #3: 14 Case #4: 0 Case #5: 0

Note

In the second sample case, an arrangement with an empty unit is:



The other arrangement with an empty unit can be produced by mirroring the arrangement above. It is obvious that there is no arrangement with two or more empty units. Thus the answer is $1^2 + 1^2 = 2$.