

Video Game

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

You're playing a new video game, which fight against n enemies. In this game, the i -th enemy has attack power a_i . You and enemies move in turns. In each turn:

- Enemies attack first. Assume there're x enemies left, k enemies with the lowest attack power will attack you and deal damage to you equal to the sum of their attack power. If $x < k$, then all the enemies will attack you.
- Then you move. You have two choices: either kill an arbitrary enemy or create an enemy with attack power m (m is a fixed number).

Your goal is to kill all the enemies and minimize the damage you take. Note that you also need to kill those enemies you created.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^4$). The description of the test cases follows.

The first line of each test case contains three integers n, m, k ($1 \leq k \leq n \leq 2 \times 10^5$, $0 \leq m \leq 10^6$).

The second line contains n integers $a_1, a_2 \dots a_n$ ($0 \leq a_i \leq 10^6$).

It is guaranteed that $\sum n \leq 2 \times 10^5$

Output

For each testcase, output a number, the minimum damage you're going to take.

Note

In the first example, you can kill the enemies 4,3,2,1 in order and gain damage $= (2 + 3 + 4) + (2 + 3 + 4) + (2 + 3) + (2) = 25$

In the second example, you can create an enemy with attack power 1, now the enemies' attack power are $\{1, 2, 3, 6, 7, 8\}$. Then you kill them in order and gain damage 39.