Problem C. Towers

Input file: `standard input`
Output file: `standard output`

Your friend is about to build a castle made of wooden blocks, he built N towers with different heights, then he wants any M towers of the same height to defense the castle. He asks you for help, but you are allowed to do the following only:

1) you can remove one block from any tower.

2) you can add a new block to any tower (assuming that you have infinite number of wooden blocks).

Find the minimum number of steps to make any M towers with the same height.

Input

The first line will contain $(1 \leq T \leq 20)$ the number of test cases.

Each test case starts with a line containing two integers N, M, the number of towers, and the number of towers he needed to be equal respectively.
Followed by a line containing N integers H_i the height of the i^{th} tower.

Output

For each test case print one line contains the minimum number of steps to make any M towers with the same height.

Scoring

Sub task #1 (10 points): $(1 \leq N \leq 100)$, $(M = N)$, $(1 \leq H_i \leq 100)$.

Sub task #2 (20 points): $(1 \leq N \leq 1000)$, $(M = N)$, $(1 \leq H_i \leq 10^9)$.

Sub task #3 (20 points): $(1 \leq N \leq 1000)$, $(1 \leq M \leq N)$, $(1 \leq H_i \leq 10^9)$.

Sub task #4 (50 points): $(1 \leq N \leq 100000)$, $(1 \leq M \leq N)$, $(1 \leq H_i \leq 10^9)$.

Examples

standard input	standard output
1 2 2 1 3	2
2 3 2 3 1 3 5 3 1 2 3 4 5	0 2