Submissions

Seven-segment Display

8pt	Not attempted **159/2058 users** correct (8%)
14pt	Not attempted **34/155 users** correct (22%)

Super 2048

6pt	Not attempted **875/2084 users** correct (42%)
13pt	Not attempted **667/858 users** correct (78%)

Addition

11pt	Not attempted **29/689 users** correct (4%)
19pt	Not attempted **11/26 users** correct (42%)

Cut Tiles

13pt	Not attempted **30/576 users** correct (5%)
16pt	Not attempted **22/29 users** correct (76%)

Top Scores

Prowindy	100
MRain	86
Dumbear2	86
Hao.Wu	84
Gyosh	71
LinKin	71
divanshu	70
Krooonal	70
dizem	59
LMH	57

Problem D. Cut Tiles

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the Quick-Start Guide to get started.

Small input 13 points	Solve D-small
Large input 16 points	Solve D-large

Problem

Enzo is doing renovation for his new house. The most difficult part is to buy exactly the right number of tiles. He wants **N** tiles of different sizes. Of course they have to be cut from the tiles he bought. All the required tiles are square. The lengths of side of the tiles are 2^{S_1}, 2^{S_2}, ..., 2^{S_N}. He can only buy a lot of tiles sized **M***M, and he decides to only cut tiles parallel to their sides for convenience. How many tiles does he need to buy?

Input

The first line of the input gives the number of test cases: **T**. **T** lines follow. Each line start with the number **N** and **M**, indicating the number of required tiles and the size of the big tiles Enzo can buy. **N** numbers follow: S_1, S_2, ... S_N, showing the sizes of the required tiles.

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 of the big tiles Enzo need to buy.

Limits

$1 \le 2^{S_k} \le M \le 2^{31}-1$.

Small dataset

$1 \le T \le 100$.
$1 \le N \le 20$.

Large dataset

$1 \le T \le 1000$.
$1 \le N \le 500$.

Sample

Input	Output
4 1 6 2 2 6 2 2 3 6 2 1 1 7 277 3 8 2 6 1 3 6	Case #1: 1 Case #2: 2 Case #3: 1 Case #4: 2