

Qualification Round 2012

[A. Speaking in Tongues](#)**B. Dancing With the Googlers**[C. Recycled Numbers](#)[D. Hall of Mirrors](#)[Contest Analysis](#)[Questions asked](#)

Submissions

Speaking in Tongues

15pt Not attempted
17356/19464
 users correct (89%)

Dancing With the Googlers

10pt Not attempted
12384/13899
 users correct (89%)

10pt Not attempted
10762/12138
 users correct (89%)

Recycled Numbers

10pt Not attempted
11747/12327
 users correct (95%)

15pt Not attempted
6811/10604 users
 correct (64%)

Hall of Mirrors

15pt Not attempted
551/879 users
 correct (63%)

25pt Not attempted
184/259 users
 correct (71%)

Top Scores

hos.lyric	100
qnighy	100
DjinnKahn	100
levlam	100
iwiskimo	100
mystic	100
TripleM	100
aleksey	100
royf	100
krijgertje	100

Problem B. Dancing With the Googlers

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
10 points

Solve B-small

Large input
10 points

Solve B-large

Problem

You're watching a show where Googlers (employees of Google) dance, and then each dancer is given a *triplet of scores* by three judges. Each triplet of scores consists of three integer scores from 0 to 10 inclusive. The judges have very similar standards, so it's *surprising* if a triplet of scores contains two scores that are 2 apart. No triplet of scores contains scores that are more than 2 apart.

For example: (8, 8, 8) and (7, 8, 7) are not surprising. (6, 7, 8) and (6, 8, 8) are surprising. (7, 6, 9) will never happen.

The *total points* for a Googler is the sum of the three scores in that Googler's triplet of scores. The *best result* for a Googler is the maximum of the three scores in that Googler's triplet of scores. Given the total points for each Googler, as well as the number of surprising triplets of scores, what is the maximum number of Googlers that could have had a best result of at least **p**?

For example, suppose there were 6 Googlers, and they had the following total points: 29, 20, 8, 18, 18, 21. You remember that there were 2 surprising triplets of scores, and you want to know how many Googlers could have gotten a best result of 8 or better.

With those total points, and knowing that two of the triplets were surprising, the triplets of scores could have been:

```
10 9 10
6 6 8 (*)
2 3 3
6 6 6
6 6 6
6 7 8 (*)
```

The cases marked with a (*) are the surprising cases. This gives us 3 Googlers who got at least one score of 8 or better. There's no series of triplets of scores that would give us a higher number than 3, so the answer is 3.

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each test case consists of a single line containing integers separated by single spaces. The first integer will be **N**, the number of Googlers, and the second integer will be **S**, the number of surprising triplets of scores. The third integer will be **p**, as described above. Next will be **N** integers **t_i**: the total points of the Googlers.

Output

For each test case, output one line containing "Case #x: y", where x is the case number (starting from 1) and y is the maximum number of Googlers who could have had a best result of greater than or equal to **p**.

Limits

$1 \leq T \leq 100$.
 $0 \leq S \leq N$.
 $0 \leq p \leq 10$.
 $0 \leq t_i \leq 30$.

At least **S** of the **t_i** values will be between 2 and 28, inclusive.

Small dataset

$1 \leq N \leq 3$.

Large dataset

$1 \leq N \leq 100$.

Sample

Input

Output

```
4
3 1 5 15 13 11
3 0 8 23 22 21
2 1 1 8 0
6 2 8 29 20 8 18 18 21

Case #1: 3
Case #2: 2
Case #3: 1
Case #4: 3
```

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