Problem A
Camp

Time limit: 1 second
Memory limit: 1024 megabytes

Problem Description

In Gakuentoshi, everyone has their own unique skill. Uiharu and Shirai are holding a learning event to let their friends to teach each other their skills and make new friends. Uiharu and her friends are red team. Shirai and her friends are white team.

Each one in red team will pick one of white team's members as student. And each one in white team will pick one of red team's members as students. Everyone will pick a student and can only be one person' s student. First, red team will teach their students their own skill. And white team will teach their students their own skill. Everyone learn one new skill now. Then red team will teach their students the new skill they just learned and so does white team. This won't stop until they cannot learn new skill.

Both red team and white team have N people. M people already choose a student. Uiharu wonders how many possibilities are left so everyone could learn all the skill the attendee has. Can you help her?

Two possibility are considered different if anyone choose a different student.

Input Format

First line contains one integer T. There are T test data followed by. In each test, the first line contains two numbers N and M separated by blanks. There are N people in each team. M people have chosen their students. Then M lines follows. The i-th of following lines contains one letter and two number C_i, u_i, and v_i. C_i could be `R` or `W`. `R` means that the u_i-th member of red team chooses the v_i-th member of white team. `W` means that the u_i-th member of white team chooses the v_i-th red team. Everyone will at most choose one student.

Output Format

For each test data, output the number of possibilities that everyone could learn all the skills the attendees have.

Technical Specification

- $1 \leq T \leq 100$
- $1 \leq N \leq 7$
- $0 \leq M \leq 2N$
- C_i is either `R` or `W`.
- $1 \leq u_i \leq N$
- $1 \leq v_i \leq N$

Sample Input 1

```
2
1 1
R 1 1
3 2
R 3 1
W 2 2
```

Sample Output 1

```
1
1
```

Problem B
Fast and Hairy

Time limit: 5 seconds
Memory limit: 1024 megabytes

Problem Description

Uiharu and Misaka are running a barbershop. There are N customers every day. Everyone wants a different hair style so the work load w_i would be different. Uiharu and Misaka have different skills to speed up their work. Uiharu could program the hair clipper to work faster. She can finish U unit of work per second. Misaka could control the electricity and operate the hair clipper without hands. She can finish M unit of work per second. Each customer can only be serviced by one barber. Uiharu and Misaka want to getting off work together. They'll go home after the last customer leave. They need to distribute the work load evenly. Right now, they are busy on preparing their equipment. Can you help them find out what is the least time to finish today's work? If the last customer leaves in the middle of a second, we say the work finishes at the end of the second.

Input Format

First line contains one integer T. There are T test data followed by. In each test, the first line contains three numbers N, U, and M separated by blanks. The second line contains N numbers $w_1, w_2, \ldots, w_N$.

Output Format

For each test data, output one number representing the least time to finish today's work.

Technical Specification

- $1 \leq T \leq 100$
- $1 \leq N \leq 10000$
- $1 \leq U \leq 10000$
- $1 \leq M \leq 10000$
- $1 \leq w_i \leq 100$ for $i \in \{1, 2, \ldots, N\}$.

Sample Input 1

```
1
5 2 3
2 7 3 6 6
```

Sample Output 1

```
5
```