A: Bangaranga

Time Limit: 1 second

Dara is preparing her latest song, Bangaranga. The song will be played at a volume of d decibels, but Dara is unhappy with the volume and wants to test out various adjustments to the volume.

Decibels work on a logarithmic scale, so an increase from d decibels to $d+10$ decibels corresponds to being 10 times more intense. In general, an increase from d decibels to $d+10k$ decibels corresponds to being 10^k times more intense. Symmetrically, a decrease from d decibels to $d-10$ decibels corresponds to being 10 times less intense. In general, a decrease from d decibels to $d-10k$ decibels corresponds to being 10^k times less intense.

Dara's adjustments take two forms:

- `BANGA k`: Take the current song and make it k times more intense.
- `RANGA k`: Take the current song and make it k times less intense.

These changes are cumulative. After each change, Dara wants to know the volume of the song.

Input

The first line of input contains a single integer T ($1 \leq T \leq 50$), representing the number of test cases.

The descriptions of T test cases follow. Each test case starts with a line containing two integers, d ($1 \leq d \leq 200$) and q ($1 \leq q \leq 50$), the initial volume of the song in decibels and the number of adjustments, respectively.

The next q lines each describe one adjustment, in the order Dara makes them. Each line is of the form either `BANGA k` or `RANGA k`, where k ($10 \leq k \leq 10^9$) is an integer power of 10. It can be shown that under these constraints, the volume will always be an integer number of decibels.

Output

For each test case, for each adjustment, output the volume of the song in decibels after that adjustment.

Sample Input 1	Sample Output 1
2 37 5 BANGA 10 BANGA 10000 RANGA 1000 BANGA 100 RANGA 10 1 1 RANGA 10	47 87 57 77 67 -9