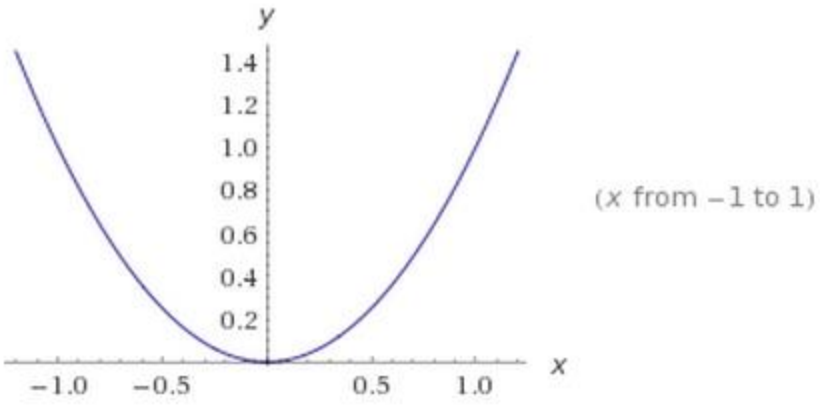
Sunday Drive

I like to take drives. More importantly, I like to drive *to* places. I take the back roads so the anticipation of my destination builds up as long as possible. I know my streets very well, and already know which roads I'm going to take. Right before I head out the door, *BOOM!!!!* Thunder strikes and rain begins to pour down with a howling wind. It wouldn't matter much to me except my vehicle doesn't have A/C, so I always have to drive with my windows down. This gets my car all wet inside, and nobody likes that! But if I drive with my windows up, then it gets way too hot inside, and nobody likes that either! My solution? Drive with one window down (the other one doesn't work anyways), and hope the wind keeps the rain out of my car. If I can make it more than halfway with my left window down, I'll be happy enough to take my drive. The weather channel tells me the wind direction, and I have the road mapped out, all I need is for you to tell me how much of my ride will I be able to keep the windows down?

Input

Input begins with a number D, the number of drives I'm taking on a single line. For each drive, there are three lines. The first line contains a single integer, S ($|S| \leq 300$) which is the slope of the wind on the x-y plane, a single space, and then either an 'F' or a 'B' character, meaning the line is traveling from the left to the right (F) or from right to left (B). On the next line will be a series of no more than 9 space separated integers, all with magnitude no more than 300. This denotes the function of the road I am taking, so for example, if we had the following four numbers 3 0 1 10, then the function would be $3x^3 + x + 10$. On the final line will be two integers, B and E ($B < E$, $|B|$, $|E| \leq 100$), denoting the x coordinates of the function that my trip begins and ends on. So if these numbers were -1 and 1, and my function was x^2, then my trip would just take me around a bend and stop.



I always travel from left to right on the graph, and if I am traveling in the same direction as the wind (whether the wind is with or against me), no rain will get into the car (see samples). I'll only take a trip so long as all numbers used are rational, so you will never have to deal with irrational or imaginary numbers

Output

Output one line per drive. The first line will read "Drive #*X*: Your windows can be down *Y*% of the time" where X is the drive number and Y is the percentage of my drive where rain will not blow into the left side of my car, rounded to 6 decimal places. Separate test cases with a single blank line.

Sample Input

```
3
0 F
2 0 0
-1 1
0 B
2 0 100
-2 1
0 F
0
-100 100
```

Sample Output

```
Drive #1: Your windows can be down 50.000000% of the time

Drive #2: Your windows can be down 33.333333% of the time

Drive #3: Your windows can be down 100.000000% of the time
```