

Let there be n doors in a mine contained room. If you choose i -th door, it either takes you to a safe place after x_i hours or it returns you to the same room after x_i hours traveling. What is the expected length of time (in hours, let P) until you can move to the safe place?

Input

The first line in the input file is an integer representing the number of test cases. Each of the test cases follows below. The first line of each case consists an integer denoting the value of n ($0 < n < 100$). Each of the next n lines contains the value of x_i , $0 < |x_i| < 25$ (if positive it takes you out, if negative it returns you) and p_i denoting the probability to choose the i -th door. You can assume that the sum of all p_i equals 1. There may be arbitrary number of spaces between the values.

Output

For each test case, first print the serial number of the case, a colon, an space and then print 'God! Save me' (without the quotes) if you can't expect to be in the safe place, else print the value of P corrected to two digits after decimal point. Check the sample input & output.

Sample Input

```
2
3
2 0.33
-3 0.33
-5 0.34
3
2 0.34
-3 0.33
-5 0.33
```

Sample Output

```
Case 1: 10.15
Case 2: 9.76
```