

Chess Battles

Filename: chess

The Problem

Alice and Bob have been planning a long-term chess tournament. In their probability class, they learned that in any competition, if more games are played, it's more likely that the "better" player will win a majority of the games. Thus, there's a higher chance for the "better" player to win in a best of 19 series than a best of 7 series. In addition, the winner of the previous match gets to play with white in the subsequent match and the player that gets to play with white for the first match is the designated first player. Alice and Bob would like for you to write a program that, given the number of total games being played in the series, and the probabilities that the first player given wins with white and wins with black, calculates the probability of the first player winning the series. You may assume that no matches end in draws.

The Input

The first line of the input file will contain a single positive integer, C ($C < 100$), representing the number of input cases. The following C lines contain information for one input case each. The first value on each of these lines will be a positive odd integer, n ($n < 1000$), representing the number of games to be played in the series. The next two values on each line will be two floating point numbers, w and b , representing the probabilities, respectively that the first player wins a given match playing with the white pieces and playing with the black pieces. Both of these values will be in between 0 and 1, inclusive.

The Output

For each input case, output a floating point number rounded to six decimal places representing the probability that the first player wins the given series.

Sample Input

```
2
5 .5 .5
1 .7 .3
```

Sample Output

```
.500000
.700000
```