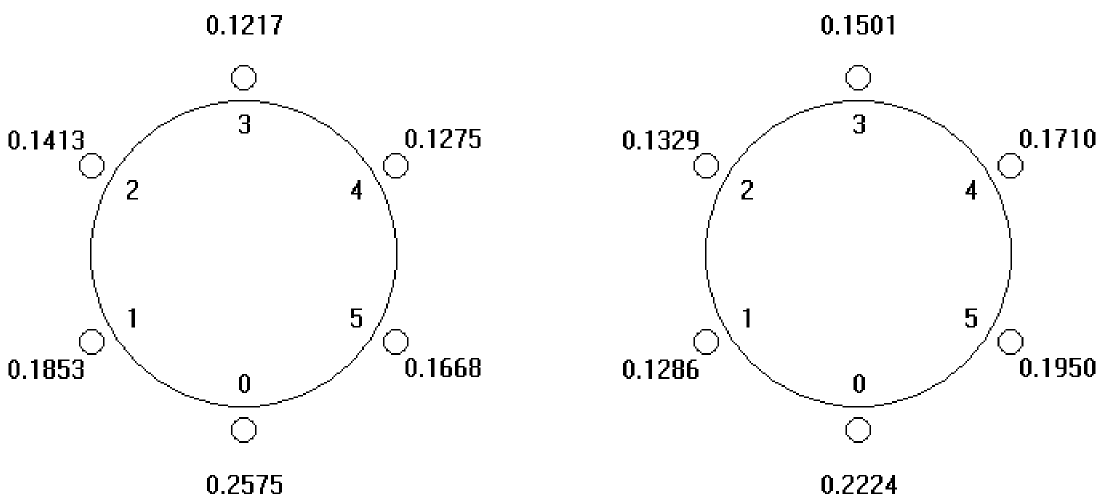
F • Left-Right-Win

The game of *Left-Right-Win* is played by **n** players around a table with a spinner* which returns *Left* with probability **P_left**, *Right* with probability **P_right** and *Win* with probability **1 – P_left – P_right**.

The game begins with the starting player (labeled *0* in the figures with other players labeled **1 .. (n-1)** clockwise) who *spins* the spinner. If the result is *Win*, he wins the pot of say $100. If the result is *Left*, the spinner is passed to the player on his/her *left* (player **1**). If the result is *Right*, the spinner is passed to the player on his/her right (player **(n-1)**). The new holder of the spinner repeats this process: winning or passing the spinner to the left or right. The game continues until someone wins. (Since the game could, theoretically, go on forever, there is a stopping rule such as: after $\mathbf{2^n}$ turns, the *house* takes the pot.)

The figure on left shows the probabilities of each of **6** players winning with **P_left = 0.5 and P_right = 0.4**. The figure on the right shows the probabilities of each of 6 players winning with **P_left = 0.1** and **P_right = 0.8**.



Clearly, player **3** is not going to want to pay as much as player **0** to play the game. We would like each player to contribute to the pot an amount proportional to the probabilyt of their winning it (the potentially infinite game). Write a program which computes the amount each player should contribute to a $100 pot given **P_left** and **P_right**.

Computations should be done in ***double precision*** floating point.

* A *spinner* is a device which returns one of several values with specified probabilities for each value. Originally, a spinner was a balanced pointer on a card with arcs around the center labeled with the different outcomes. You spin the pointer and where it lands is the chosen value. The arc lengths are proportional to the probabilities of the values. A spinner may be simulated by any random device. For instance, the **P_left = 1/3** and **P_right = 1/3** may be simulated by rolling a single die and specifying *Left* for **1** or **2**, *Right* for **3** or **4** and *Win* for **5** or **6**.

Input

The first line of input contains a single decimal integer ***P***, **(1 ≤ *P* ≤ 100)**, which is the number of data sets that follow. Each data set should be processed identically and independently.

Each data set consists of a single line of input containing 5 space separated values: the data set number, ***K***, followed by the number of players, ***n***, a decimal integer: ***(3 ≤ n ≤ 15)***, followed by the label of the player ***k***, a decimal integer, ***(0<=k<=n-1)***, whose contribution is to be found, followed by two floating point values ***P_left*** and ***P_right***. ***(P_left+P_right ≥ 0.8)***.

Assume a pot of $100 for all datasets.

Output

For each data set there is one line of output. The single output line consists of the data set number, ***K***, followed by a single space followed by the contribution of player ***k*** to the $100 pot in dollars to two decimal places (i.e. dollars and cents).

Sample Input	Sample Output
3 1 6 0 .5 .4 2 6 3 .1 .8 3 6 2 .9 .03	1 25.75 2 15.01 3 17.13