You live in a village but work in another village. You decided to follow the straight path between your house (A) and the working place (B), but there are several rivers you need to cross. Assume B is to the right of A, and all the rivers lie between them.

Fortunately, there is one “automatic” boat moving smoothly in each river. When you arrive the left bank of a river, just wait for the boat, then go with it. You’re so slim that carrying you does not change the speed of any boat.

Days and days after, you came up with the following question: assume each boat is independently placed at random at time 0, what is the **expected time** to reach B from A? Your walking speed is always 1.

To be more precise, for a river of length L, the distance of the boat (which could be regarded as a mathematical point) to the left bank at time 0 is **uniformly chosen** from interval $[0, L]$, and the boat is equally like to be moving left or right, if it’s not precisely at the river bank.

Input

There will be at most 10 test cases. Each case begins with two integers n and D, where n ($0 \le n \le 10$) is the number of rivers between A and B, D ($1 \le D \le 1000$) is the distance from A to B. Each of the following n lines describes a river with 3 integers: p, L and v ($0 \le p < D$, $0 < L \le D$, $1 \le v \le 100$). p is the distance from A to the left bank of this river, L is the length of this river, v is the speed of the boat on this river. It is guaranteed that rivers lie between A and B, and they don’t overlap. The last test case is followed by $n = D = 0$, which should not be processed.

Output

For each test case, print the case number and the expected time, rounded to 3 digits after the decimal point.

Print a blank line after the output of each test case.

Sample Input

```
1 1
0 1 2
0 1
0 0
```

Sample Output

```
Case 1: 1.000

Case 2: 1.000
```