NOI '07 P2 - Cash Exchange

Time limit: 0.6s **Memory limit:** 256M

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Little Y has recently been working at a currency exchange center. The currency exchange center only offers two types of vouchers to be exchanged: commemorative voucher A (henceforth known as voucher A) and commemorative voucher B (henceforth known as voucher B). All voucher-holding customers possess their very own account. The quantity of vouchers a customer has may be a real number.

Rising and falling daily with the waves of the market, the two types of vouchers each has their own values at any given time, and each unit of a voucher can be traded that day for some amount of cash. We note that on day K, the values of voucher A and voucher B are respectively A_K and B_K (dollars/unit voucher).

To make it more convenient for customers, the exchange center offers a very easy system to make transactions: the ratio exchange method. There are two different aspects to the ratio exchange method:

1. Selling vouchers: the customer provides a real number OP in the range $[0, 100]$ as the selling ratio. This means that $OP\%$ of voucher A and $OP\%$ of voucher B are exchanged for cash with the rate at that point in time.
2. Buying vouchers: the customer pays IP dollars, and the exchange center takes this money to exchange it for vouchers. Furthermore, the ratio between the value of voucher A and voucher B on day K just happens to be $Rate_K$.

For example, let's assume for the next 3 three days the following changes in the values of A_K, B_K, and $Rate_K$:

Time	A_K	B_K	$Rate_K$
Day 1	1	1	1
Day 2	1	2	2
Day 3	2	2	3

Let's say that on one day, a customer has 100 dollars but no vouchers of any kind. The customer carries out the following transactions:

Time	Transaction	Cash (Dollars)	Voucher A	Voucher B
Initial	None	100	0	0
Day 1	Buy — 100 dollars	0	50	50
Day 2	Sell — 50%	75	25	25
Day 2	Buy — 60 dollars	15	55	40
Day 3	Sell — 100%	205	0	0

Note that there may be multiple transactions on a single day.

Little Y is a very economically-minded worker. After a relatively long time conducting operations and market estimates, he already knows within the future N days what the values of vouchers A and B, as well as the rate, will be. He wishes to calculate, if one starts with S dollars, what is the maximum amount of cash (in dollars) that can be obtained after N days.

Input Specification

The first line contains two positive integers N and S, representing the number of days that little Y's can foresee and the starting amount of cash respectively.
Within the next N lines, the K-th line contains three real numbers A_K, B_K, and $Rate_K$.

Output Specification

Output a single real number $MaxProfit$, indicating the maximum amount of cash in dollars that can be obtained after all operations on the N-th day has finished, accurate to 3 decimal places. Your answer will be considered correct if its absolute difference with the correct answer is no larger than 0.001.

Sample Input

```
3 100
1 1 1
1 2 2
2 2 3
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Sample Output

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225.000
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Explanation

Time	Transaction	Cash (Dollars)	Voucher A	Voucher B
Initial	None	100	0	0
Day 1	Buy — 100 dollars	0	50	50
Day 2	Sell — 100%	150	0	0
Day 2	Buy — 150 dollars	0	75	37.5

Time	Transaction	Cash (Dollars)	Voucher A	Voucher B
Day 3	Sell — 100%	225	0	0

Constraints

The test data ensures that the precision needed for calculations will not exceed 10^{-7}.
For 40% of the test cases, $N \le 10$;
For 60% of the test cases, $N \le 1\,000$;
For 100% of the test cases, $N \le 100\,000$;
For 100% of the test cases:

- $0 < A_K \le 10$;
- $0 < B_K \le 10$;
- $0 < Rate_K \le 100$;
- $MaxProfit \le 10^9$.

Hints

The input may be very large, please use faster methods of input.
There must be an optimal series of transaction satisfying the conditions:

- each buying transaction uses up all of the cash, and
- each selling transaction sells all of the vouchers.

Problem translated to English by **Alex**.