

Space Invaders

The SETI signal is indisputable - an alien invasion of Flatland is imminent. The aliens have sent N ships, each of which has been determined to be at some position (X_i, Y_i) and moving vertically down towards Flatland at velocity V_i . Flatland is situated on the X -axis between $(-L, 0)$ and $(L, 0)$.

Once a ship lands, it is expected that the aliens will spread out across Flatland at a rate of W_i . They have a large technological advantage and Flatland's current defenses will be no match for the invaders. However, there is still hope: a secret research weapon is being built which, if completed, will be able to push back the aliens.

As Flatland's head of defense, you have been tasked with determining how long it will take for the invaders to entirely conquer Flatland. Using your estimate, the researchers will work hard to prepare the weapon in time. Don't let them down!

Input

Each test case begins with two integers N, L ($1 \leq N \leq 10,000$, $1 \leq L \leq 10^9$). The next N lines each contain integers X, Y, V, W ($-L \leq X \leq L$, $1 \leq Y, V, W \leq 10^9$), which represent the location of a ship, how fast it is moving, and how fast the aliens will spread out from the ship once it lands.

Output

For each test case, output, on one line, the time until Flatland is conquered, rounded to two decimal places.

Sample Input 1:

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1 5
0 3 1 2
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Sample Output 1:

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5.50
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Sample Input 2:

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2 4
-2 5 5 1
2 5 2 2
```

Sample Output 2:

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3.50
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Explanation of the Sample Input:

In the second case, the first ship touches down at $X = -2$ after 1 second and the aliens begin spreading out at a rate of one unit per second. After 2.5 seconds, the second ship touches down, at which point the first ship has conquered the $[-4, 0.5]$ section of Flatland. The aliens then spread out from the second ship at a rate of 2 units per second, conquering the remaining portion of Flatland in one second.