Problem D. Walker

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

As a world-famous traveler, Prof. Pang's research interest is to travel as many places as possible in his life.

We have a segment $[0, n]$. There are two travelers on it. The first one is on position p_1 with velocity v_1 (which means s/he can walk v_1 unit on the segment per second). The second one is on position p_2 with velocity v_2.

From their respective beginning points, travelers can walk on the segment. They cannot walk outside the segment. Whenever they want to change their direction, they can turn around immediately.

Please help Prof. Pang to calculate the minimum possible time by which every position of the segment is passed by at least one traveler.

Input

The first line contains one integer *test* ($1 \le test \le 10000$) – the number of test cases.

The i-th of the next *test* lines contains five numbers $n, p_{1,i}, v_{1,i}, p_{2,i}, v_{2,i}$ ($0 < n \le 10000$, $0 \le p_{1,i}, p_{2,i} \le n$, $0.001 \le v_{1,i}, v_{2,i} \le 1000$). All numbers have at most 3 digits after the decimal point.

Output

For each test case, we should output one number – the minimum time that every position of the segment is passed by at least one traveler.

Your answer is considered correct if its absolute or relative error does not exceed 10^{-6}.

Example

standard input	standard output
2 10000.0 1.0 0.001 9999.0 0.001 4306.063 4079.874 0.607 1033.423 0.847	5001000.0000000000 3827.8370013755