Solving linear equations

Solve a system of N (1<N<7) linear equations of the form $a_1*x_1+a_2*x_2+...+a_N*x_N=c$. a_i and c are real numbers. A unique solution is assured.

Input

First line with number N, then N lines with a_1, a_2,...a_N, c separated by space.

Output

The results for x_1, x_2,...x_N one in each line. The floats should have a precision of 5 digits after the decimal-point.

Example

Input:
2
1 2 3
2 3 4

Output:
-1.00000
2.00000