The second stage of solving the system of equations by the Gauss method

Given: a two-dimensional array of whole numbers *A*, the values of the elements below the main diagonal is zero, and array *B*. *A* given two-dimensional array *A* is a coefficient matrix of some system of linear equations, array *B* is the vector of free coefficients of the same system. It is required to solve this system by the Gauss method and derive an array of *N* values, being the solution to this system.

Input

From the standard input device, the number *N* ($1 \leq N \leq 50$) is entered in the first row - the number of rows and columns of the two-dimensional array A. In the next *N* rows exactly *N* elements are entered. The last row contains *N* numbers of array *B*.

Output

It is required to print N numbers that are the solution of a given system, **with an accuracy of three decimal places. It is not necessary print a space after the last value.**

Sample Input

```
3
1 2 3
0 4 7
0 0 3
10 20 6
```

Sample Output

```
1.000 1.500 2.000
```

Note

An example of solving the system by the Gauss method:

Suppose we are given a matrix $\begin{pmatrix} 1 & 2 & 3 \\ 0 & 4 & 7 \\ 0 & 0 & 3 \end{pmatrix}$ and a vector $\begin{pmatrix} 10 \\ 20 \\ 6 \end{pmatrix}$, then they set the system:

$$\begin{pmatrix} 1*x+2*y+3*z=10 \\ 0*x+4*y+7*z=20 \\ 0*x+0*y+3*z=6 \end{pmatrix}$$

It can be solved like this:

$$z=\frac{6}{3}=2;$$

$$y=\frac{20-7*z}{4}=1{,}5;$$

$$x=\frac{10-3*z-2*y}{1}=1;$$