Problem F. Format a Table

Input file:	*standard input*
Output file:	*standard output*
Time limit:	5 seconds
Memory limit:	64 mebibytes

Little Vadim has got a homework at school: he have to describe characters of one famous literary work. Vadim has successfilly finished his homework and drawn a report in form of a spreadsheet in his favorite text editor.

The spreadsheet has the following structure. It is a table of size 3×3. On intersection of the i-th row and the j-th column a text of length a_{ij} is placed. The total width of the table is w symbols. The text editor allows to change width of every column in arbitrary way. Let widths of the columns be x, y, z, and $x + y + z = w$. Then height of the i-th row is $h_i = \max(\lceil a_{i1}/x \rceil, \lceil a_{i2}/y \rceil, \lceil a_{i3}/z \rceil)$, and the total height of the table is $h = h_1 + h_2 + h_3$.

Vadim noticed that changing widths of the columns changes heigth of the whole table in unpredictable way. Vadim is a perfectionist, and he wants to change widths of the columns in such a way that the total height of the table is minimal.

Help Vadim and find the optimal solution.

Input

The first line contains integer w ($3 \le w \le 10^9$).

The following three lines contain three integers each. The j-th number in the i-th of these lines is integer a_{ij} ($1 \le a_{ij} \le 10^{12}$).

Output

In the first line output integer h — the minimum possible height of the whole table.

In the second line output three integers x, y, and z — widths of columns that imply the optimal solution.

If there are several solutions — output any of them.

Example

standard input	standard output
17 10 11 11 13 7 14 10 11 11	7 5 6 6

Note

The following table match data from the first sample:

lawfu lgood	neutra lgood	chaoti cgood
lawfu lneut ral	neutra l	chaoti cneutr al
lawfu levil	neutra levil	chaoti cevil