

The Glazier 2

Jozo the glazier has once again made N square pieces of glass. The dimensions (sides) of these squares are equal to $1, 2, 3, \dots, N$ - therefore, the areas of these squares equal to $1^2, 2^2, 3^2, \dots, N^2$.

Four customers have arrived once again. This time Jozo will sell all N squares of glass. Again, each of the customers must get the same total area of glass (which equals the total area of all N squares divided by four).

Help Jozo and divide his N pieces of glass among the four customers. Assume that the solution (not necessarily unique) exists in all of the test data.

Input

An integer N ($10 \leq N \leq 60$).

Output

In the first line, print four numbers: the number of pieces of glass assigned to the first, to the second, to the third and to the fourth customer (respectively).

In i^{th} of the next four lines, print the dimensions of the squares of glass assigned to the i^{th} customer. (Each square must be assigned to exactly one customer.)

Example

Input:

15

Output:

4 4 4 3
3 6 11 12
4 5 10 13
1 7 8 14
2 9 15