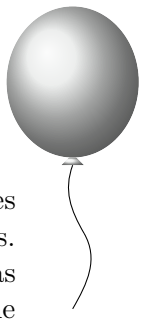
A Grove



You want to plant trees in a square lawn of size $n \times n$ whose corners have Cartesian coordinates $(0, 0)$, $(n, 0)$, $(0, n)$, and (n, n). Trees can only be planted at locations with integer coordinates. Every tree will grow roots within a disk of radius r centered at the location where the tree was planted; such disks must be fully contained in the lawn (possibly touching the boundary of the lawn) and can only intersect each other on their boundaries.

Find a configuration that maximizes the number of trees.

Input

The first and only line contains an integer n ($1 \leq n \leq 20$) and a real number r ($0 < r \leq n/2$) — the length of the sides of the lawn, and the radius of the disks where each tree will grow roots. The real number r is given in decimal notation with at least 1 and at most 3 digits after the decimal point.

Output

In the first line, print the maximum number m of trees that can be planted.

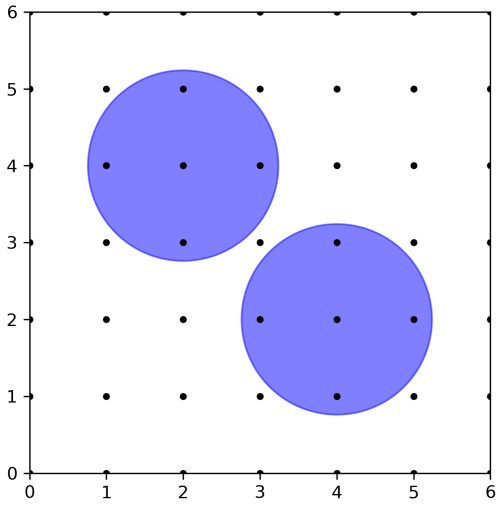
In the next m lines, print a configuration that maximizes the number of trees. Specifically, in the $(i + 1)$-th line, print two integers x and y — the coordinates of the location where the i-th tree should be planted. You can print the trees in any order.

If there are multiple solutions, print any of them.

Samples

Sample input 1	Sample output 1
6 1.241	2 4 2 2 4

Explanation of sample 1.
The sample output is shown in the following figure. Note that this is not the only configuration that maximizes the number of trees.



Sample input 2	Sample output 2
9 2.0	4 2 2 7 2 2 6 6 6

Explanation of sample 2.
The sample output is shown in the following figure. Note that this is not the only configuration that maximizes the number of trees.

