

Circle Construction

Input file: *standard input*
Output file: *standard output*
Time limit: 3 seconds
Memory limit: 1024 mebibytes

You are given an integer r .

Construct six pairwise distinct points $P_1, P_2, \dots, P_6$ with integer coordinates such that all of the following conditions hold:

- P_1, P_2, P_3 , and P_4 lie on one circle of radius exactly r ;
- P_3, P_4, P_5 , and P_6 lie on one circle;
- P_1, P_2, P_5 , and P_6 lie on one circle;
- the three circles above are pairwise distinct.

The centers of all three circles do not have to have integer coordinates. The radii of the second and third circles do not have to be integer either. Only the coordinates of the six constructed points are required to be integer.

Input

The first line contains a single integer t ($1 \leq t \leq 50$): the number of test cases.

Each of the next t lines contains one integer r ($1 \leq r \leq 150$): the required radius of the first circle.

Output

For each test case, print six lines. The i -th line must contain two integers x_i and y_i ($|x_i|, |y_i| \leq 10\,000$), denoting the coordinates of P_i .

If there are several valid constructions, print any one of them.

Example

<i>standard input</i>	<i>standard output</i>
1	6 8
10	10 0
	-8 -6
	0 10
	13 15
	15 15

Note

The example shows one possible construction. Other valid constructions are accepted as well.

