D: Dominoes Magic Squares

Source file name: `dominoes.c, dominoes.cpp`, `dominoes.java`, *or* `dominoes.py`
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A *domino set* is a collection of tiles of the form

$$[a \mid b]$$

with integer labels a and b satisfying $0 \leq a, b \leq 6$. Both $[a \mid b]$ and $[b \mid a]$ are descriptions of the same domino tile. A complete domino set has exactly 28 tiles and the sum of all its labels is 168.

A *magic square* is a square of integer numbers whose rows, columns, and diagonals have the same sum. Since domino tiles can be seen as planar objects of 2 unit squares, they can be used to build magic squares. For instance, the set of domino tiles

$$[1 \mid 4], [5 \mid 2], [4 \mid 4], [2 \mid 3], [5 \mid 4], [5 \mid 3], [1 \mid 3], [3 \mid 3]$$

can be arranged into a magic square of side 4 units with rows, columns, and diagonals adding up to 13:

4	4	2	3
3	3	2	5
1	3	5	4
5	3	4	1

However, it is impossible to build a 4×4 magic square with the following set of titles adding up to 15 in rows, columns, and diagonals:

$$[6 \mid 5], [2 \mid 4], [2 \mid 2], [5 \mid 5], [5 \mid 4], [5 \mid 1], [2 \mid 3], [3 \mid 6].$$

Assume you are given 8 domino tiles: can you arrange them into a 4×4 magic square?

Input

The input consists of several test cases. A test case comprises 8 consecutive lines of input, each one containing two blank-separated integers a and b, $0 \leq a, b \leq 6$, representing the tile $[a \mid b]$. You can assume that a test case does not contain repeated dominoes.

The input must be read from standard input.

Output

For each test case, output one line with the unique character '`Y`' if a magic square can be built with the given domino tiles and '`N`' otherwise.

The output must be written to standard output.

Sample Input	**Sample Output**
1 4 5 2 4 4 2 3 5 4 5 3 1 3 3 3 6 5 2 4 2 2 5 4 5 5 5 1 2 3 3 6	Y N