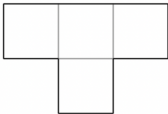


T Tile Placement Counting

Input file: **standard input**
Output file: **standard output**
Time limit: 4 seconds
Memory limit: 1024 megabytes

A whale is elegantly swimming with its tail fin emerging from the water surface. This is a tiling problem.

Determine the number of ways to tile an $H \times W$ grid with tiles in the shape of the letter T, as shown in the figure below. Calculate the result modulo 998244353.



When tiling the grid with the T-shaped tiles, the following conditions must be satisfied:

- Tiles must be placed along the grid cells.
- Tiles must not protrude beyond the grid.
- Different tiles must not cover the same grid cell.
- There should be no grid cell left uncovered by any tile.

Additionally, tiles can be used with rotation, without distinguishing between the front and back, and without distinguishing between different tiles. Furthermore, arrangements of tiles that match only after rotation or reflection are considered distinct.

Input

The input is given from Standard Input in the following format:

H W

- All values in the input are integers.
- $1 \leq H \leq 30$
- $1 \leq W \leq 10^{18}$

Output

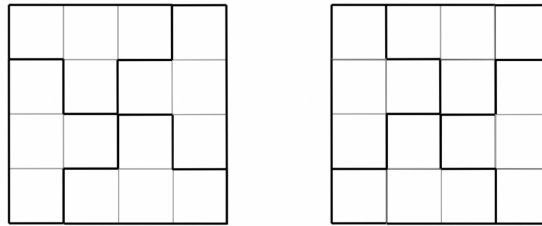
Output the answer.

Examples

standard input	standard output
4 4	2
2 8	0
12 3456	491051233

Note

In the first example, there are two possible ways to tile the grid with tiles as follows:



In the second example, there is no way to tile the grid with tiles.