



## 5028 - Delta Wave

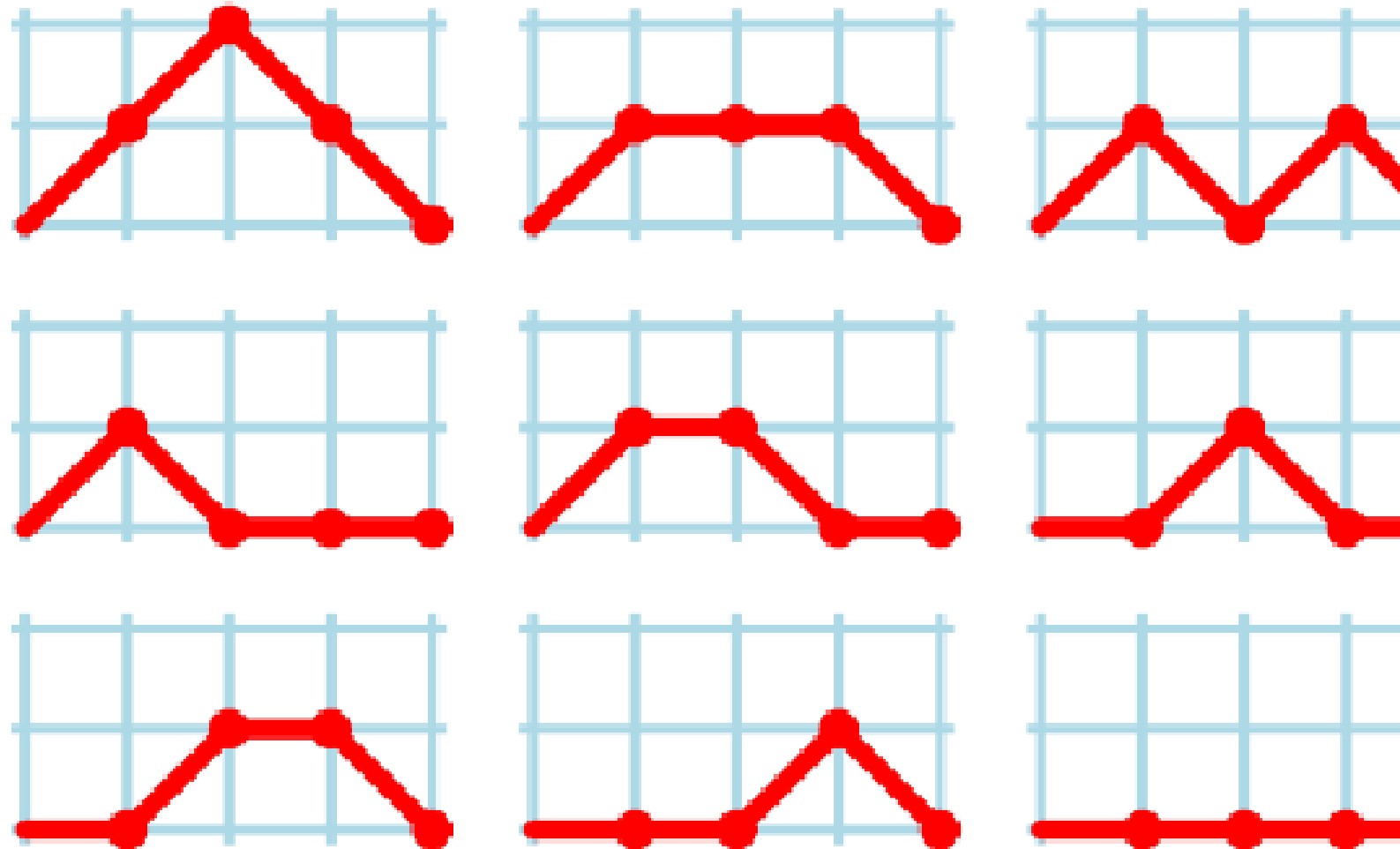
Asia - Tianjin - 2010/2011

A delta wave is a high amplitude brain wave in humans with a frequency of 1 - 4 hertz which can be recorded with an electroencephalogram (EEG) and is usually associated with slow-wave sleep (SWS).

- from Wikipedia

The researchers have discovered a new kind of species called ``otaku'', whose brain waves are rather strange. The delta wave of an otaku's brain can be approximated by a polygonal line in the 2D coordinate system. The line is a route from point  $(0, 0)$  to  $(N, 0)$ , and it is allowed to move only to the right (up, down or straight) at every step. And during the whole moving, it is not allowed to dip below the  $y = 0$  axis.

For example, there are the 9 kinds of delta waves for  $N = 4$ :



Given  $N$ , you are requested to find out how many kinds of different delta waves of otaku.

## Input

There are no more than 20 test cases. There is only one line for each case, containing an integer  $N$  ( $2 < N \leq 10000$ )

## Output

Output one line for each test case. For the answer may be quite huge, you need only output the answer module  $10^{100}$ .

## Sample Input

3  
4

## Sample Output

4  
9

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Tianjin 2010-2011