

# Packing P's - MathGames

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**Difficulty:** ★ ★ ★ ★ ☆

**Key words:** Packing, Combinatorics

A certain old man from Spain has requested your help packing his luggage. In one of his square suitcases of side length  $n$ , he would like to fit as many boxes as possible. The boxes are shaped like a P-pentomino, as shown below. Strangely, all the boxes smell like chocolate, but you decide to not pay too much attention to the smell. Given that the suitcase is a square with sides of length  $n$ , how many boxes can you fit into the suitcase without overlap? Mirroring and rotating the boxes is allowed.

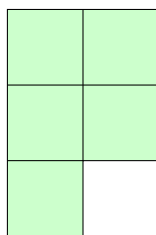


Figure 1: A P-pentomino

## Input

- A single integer  $1 \leq n < 10^4$ , the side length of the old man's suitcase.

## Output

- A single integer, the maximal number of P-pentomino shaped boxes that fit.

## Examples

Input	Output
3	1

Input	Output
4	3