n passengers board an airplane with exactly n seats. The first passenger has lost the ticket and picks a seat randomly. But after that, the rest of the passengers will:

* Take their own seat if it is still available, and
* Pick other seats randomly when they find their seat occupied

Return *the probability that the* nth *person gets his own seat*.

**Example 1:**

Input: n = 1  
Output: 1.00000  
Explanation: The first person can only get the first seat.

**Example 2:**

Input: n = 2  
Output: 0.50000  
Explanation: The second person has a probability of 0.5 to get the second seat (when first person gets the first seat).

**Constraints:**

* 1 <= n <= 105