

# 2189. Number of Ways to Build House of Cards Premium

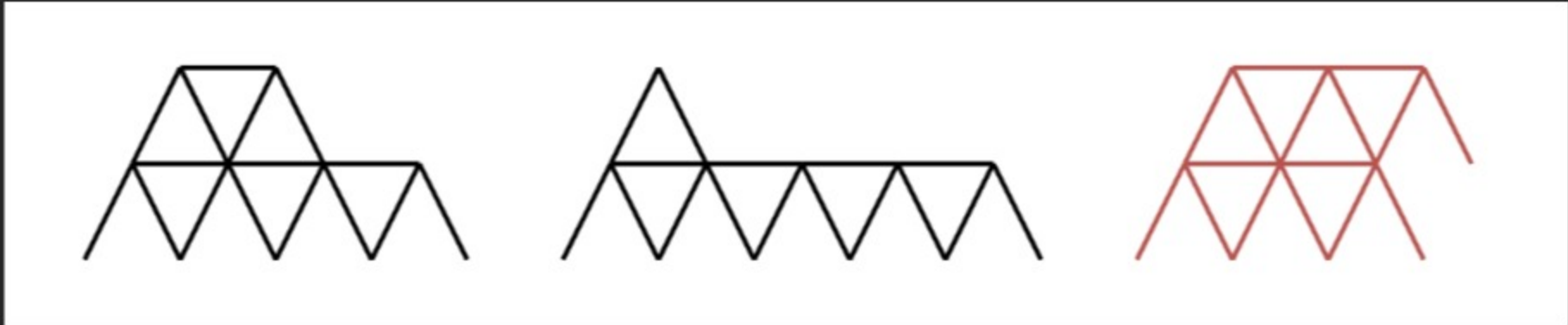
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You are given an integer  $n$  representing the number of playing cards you have. A **house of cards** meets the following conditions:

- A **house of cards** consists of one or more rows of **triangles** and horizontal cards.
- Triangles** are created by leaning two cards against each other.
- One card must be placed horizontally between **all adjacent** triangles in a row.
- Any triangle on a row higher than the first must be placed on a horizontal card from the previous row.
- Each triangle is placed in the **leftmost** available spot in the row.

Return *the number of **distinct house of cards** you can build using all  $n$  cards*. Two houses of cards are considered distinct if there exists a row where the two houses contain a different number of cards.

Example 1:



**Input:**  $n = 16$   
**Output:** 2  
**Explanation:** The two valid houses of cards are shown.  
The third house of cards in the diagram is not valid because the rightmost triangle on the top row is not placed on top of a horizontal card.

Example 2:



**Input:**  $n = 2$   
**Output:** 1  
**Explanation:** The one valid house of cards is shown.

Example 3:



**Input:**  $n = 4$   
**Output:** 0  
**Explanation:** The three houses of cards in the diagram are not valid.  
The first house of cards needs a horizontal card placed between the two triangles.  
The second house of cards uses 5 cards.  
The third house of cards uses 2 cards.

Constraints:

- $1 \leq n \leq 500$

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Hint 1

If a row has  $k$  triangles, how many cards does it take to build that row? It takes  $3 * k - 1$  cards.

Hint 2

If you still have  $i$  cards left, and on the previous row there were  $k$  triangles, what are the possible ways to build the current row? You can start at 1 triangle and continue adding more until you run out of cards or reach  $k - 1$  triangles.

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