

Problem 1688: Count of Matches in Tournament

Problem Information

Difficulty: Easy

Acceptance Rate: 86.21%

Paid Only: No

Tags: Math, Simulation

Problem Description

You are given an integer n , the number of teams in a tournament that has strange rules:

* If the current number of teams is **even**, each team gets paired with another team. A total of $n / 2$ matches are played, and $n / 2$ teams advance to the next round. * If the current number of teams is **odd**, one team randomly advances in the tournament, and the rest gets paired. A total of $(n - 1) / 2$ matches are played, and $(n - 1) / 2 + 1$ teams advance to the next round.

Return the number of matches played in the tournament until a winner is decided.

Example 1:

Input: $n = 7$ **Output:** 6 **Explanation:** Details of the tournament: - 1st Round: Teams = 7, Matches = 3, and 4 teams advance. - 2nd Round: Teams = 4, Matches = 2, and 2 teams advance. - 3rd Round: Teams = 2, Matches = 1, and 1 team is declared the winner. Total number of matches = $3 + 2 + 1 = 6$.

Example 2:

Input: $n = 14$ **Output:** 13 **Explanation:** Details of the tournament: - 1st Round: Teams = 14, Matches = 7, and 7 teams advance. - 2nd Round: Teams = 7, Matches = 3, and 4 teams advance. - 3rd Round: Teams = 4, Matches = 2, and 2 teams advance. - 4th Round: Teams = 2, Matches = 1, and 1 team is declared the winner. Total number of matches = $7 + 3 + 2 + 1 = 13$.

Constraints:

*`1 <= n <= 200`

Code Snippets

C++:

```
class Solution {  
public:  
    int numberOfMatches(int n) {  
  
    }  
};
```

Java:

```
class Solution {  
    public int numberOfMatches(int n) {  
  
    }  
}
```

Python3:

```
class Solution:  
    def numberOfMatches(self, n: int) -> int:
```