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Viral Advertising

by Shafaet

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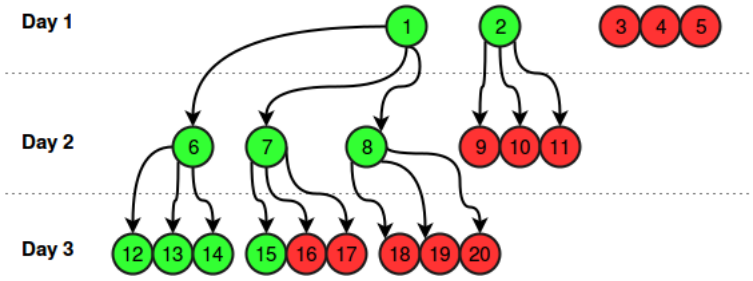
HackerLand Enterprise is adopting a new viral advertising strategy. When they launch a new product, they advertise it to exactly 5 people on social media.

On the first day, half of those 5 people (i.e., $floor(\frac{5}{2}) = 2$) like the advertisement and each person shares it with 3 of their friends; the remaining people (i.e., $5 - floor(\frac{5}{2}) = 3$) delete the advertisement because it doesn't interest them. So, at the beginning of the second day, $floor(\frac{5}{2}) \times 3 = 2 \times 3 = 6$ people receive the advertisement.

On the second day, half of the 6 people who received the advertisement share it with 3 new friends. So, at the beginning of the third day, $floor(\frac{6}{2}) \times 3 = 3 \times 3 = 9$ people receive the advertisement. The diagram below depicts the advertisement's virality over the first three days (green denotes a person that likes the advertisement and red denotes a person that disliked and deleted it):



Assume that at the beginning of the i^{th} day, m people received the advertisement, $floor(\frac{m}{2})$ people like and share it with 3 new friends, and $m - floor(\frac{m}{2})$ people dislike and delete it. At the beginning of the $(i+1)^{th}$ day, $floor(\frac{m}{2}) \times 3$ people receive the advertisement.

Given an integer, n, find and print the total number of people who *liked HackerLand Enterprise's advertisement* during the first n days. It is guaranteed that no two people have any friends in common and, after a person shares the advertisement with a friend, the friend always sees it the next day.

Input Format

A single integer, n, denoting a number of days.

Constraints

- $1 \leq n \leq 50$

Output Format

Print the number of people who liked the advertisement during the first n days.

Sample Input

```
3
```

Sample Output

```
9
```

Explanation

This example is depicted by the diagram at the top of the challenge. 2 people liked the advertisement on the first day, 3 people liked the advertisement on the second day and 4 people liked the advertisement on the third day, so the answer is $2+3+4=9$.

Easy Submitted 39525 times
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Current Buffer (saved locally, editable) C++14

```
#include <iostream>

constexpr inline void likesRecieved(const int& n, int& sum)
{
    int advertisement = 5;
    int likes = 0;
    for(auto i=0; i<n;++i)
    {
        likes = advertisement/2;
        sum += likes;
        advertisement = likes*3;
    }
}

int main()
{
    int n; std::cin>>n;
    int sum = 0;
    likesRecieved(n,sum);
    std::cout<<sum<<std::endl;
    return 0;
}

```

Line: 2 Col: 1

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