

Problem H

Odd Binomial Coefficients

Problem ID: oddbinom

You might be familiar with the binomial coefficient $\binom{m}{k}$ defined as $\binom{m}{k} = \frac{m!}{k!(m-k)!}$, where m and k are non-negative integers and $k \leq m$. Let $T_2(n)$ be the number of odd binomial coefficients such that $0 \leq k \leq m < n$. The most useful mathematical inequality you will learn during this competition is

$$0.812556n^{\log_2 3} \leq T_2(n) \leq n^{\log_2 3}.$$

Emma doesn't like such imprecise inequalities and would like to calculate $T_2(n)$ exactly. Can you help her?

Input

The input contains one line with one integer n , $1 \leq n \leq 10^{11}$.

Output

Output one line with the value of $T_2(n)$.

Sample Input 1

4

Sample Output 1

9

Sample Input 2

6

Sample Output 2

15

圖方蔡七法古

