Problem 8: Tree magic attack

Statement

Harry is working on a magic potion, this potion has a spreading factor of 2, This means throwing it on one opponent, the magic will spread to 2 others and so on.

This spreading will go on for **g** generation, each opponent affected by this powerful potion will suffer a damage equals to the number of the generation he is a part of. This means the effect will get stronger for each generation.

Harry wants to know the total of all the damage he caused his opponents.

Note: The very first infected opponent is part of the generation 1.

Input

A single integer, representing g: the number of generations.

Output

The sum of all the damage caused.

Example

Input	Output
3	17
1	1