

Task 3. Sum and product

Your math teacher has given the following task for homework: given a positive integer n , find a sequence of positive integers $a_1, a_2, a_3, \dots, a_n$, such that

$$a_1 * a_2 * a_3 * \dots * a_n = a_1 + a_2 + a_3 + \dots + a_n \text{ and } a_1 \geq a_2 \geq a_3 \geq \dots \geq a_n$$

You quickly solve this task and by doing so, you convince yourself that such a sequence always exists but then you start thinking about the question: „Given a positive integer n , what is the number of sequences with the above properties?“

Task: Write the program **sum_prod**, which for a given positive integer n finds the number of sequences of positive integers $a_1, a_2, a_3, \dots, a_n$, such that

$$a_1 * a_2 * a_3 * \dots * a_n = a_1 + a_2 + a_3 + \dots + a_n \text{ and } a_1 \geq a_2 \geq a_3 \geq \dots \geq a_n$$

Input. From one line of the standard input, read one positive integer n – the count of the numbers in the sequences.

Output. On one line of the standard output, the program has to write the found number of sequences. We know, it can be proven that given the constraints below, the answer is a finite number smaller than 10^{18} .

Constraints

$$2 \leq n \leq 100\,000\,000\,000$$

Subtask

Subtask	Points	n
1	5	≤ 10
2	10	$\leq 1\,000\,000$
3	10	$\leq 100\,000\,000$
4	10	$\leq 1\,000\,000\,000$
5	20	$\leq 10\,000\,000\,000$
6	45	$\leq 100\,000\,000\,000$

The points for a subtask are given only if all the tests are successfully passed.

Examples

Input	Output	Explanation
2	1	There is only one sequence with the specified properties and it is (2, 2)
8	2	The two sequences are (8, 2, 1, 1, 1, 1, 1, 1) and (3, 2, 2, 1, 1, 1, 1, 1)