

Sums of Two

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 1024 mebibytes

Lina the Magician claims that a common modern computer can easily perform a hundred billion operations per second! To prove it, she proposes to run the following calculations.

Let V be a set of integers, initially empty. We are given the starting value of the integer s . Make n steps described below:

- $s \leftarrow (s \cdot 618\,023 + 1) \bmod 999\,983$;
- find the number of distinct pairs of integers in V that have the sum s ;
- if this number is even, insert s into the set V .

How many elements will there be in V after n steps?

Formally: on each step, we count the number of pairs (a, b) where $a \in V, b \in V, a \leq b$ and $a + b = s$.

Input

The first line contains integers n and s ($1 \leq n \leq 200\,000; 0 \leq s < 999\,983; s \neq 742\,681$).

Output

Print a single integer: the size of set V after n steps.

Example

<i>standard input</i>	<i>standard output</i>
4 179629	3

Note

In the example, the values of s on the four steps are 740 740, 139 655, 469 353, and 880 395.