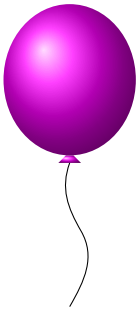
XAPC Algorithmic Programming Contest > badas

K Caps and Sneakers



Time limit: 1.0s
Memory limit: 256MB

You are moving from one apartment to another.

There are n caps and n pairs of sneakers in the old apartment. You also have a suitcase of size W that you can use to transport caps and sneakers.

For every integer i from 1 to $W-1$, consider the following moving scenario:

- every cap has size i;
- every pair of sneakers has size $W-i$;
- regardless of the scenario, the suitcase has capacity W.

In each scenario, you may make several trips from the old apartment to the new one. After every such trip except the last one, you return back to the old apartment.

During every trip from the old apartment to the new one:

- you may put some items into the suitcase, with total size at most W;
- you may wear at most one cap, which does not occupy suitcase capacity;
- you must wear exactly one pair of sneakers, which also does not occupy suitcase capacity.

During every return trip from the new apartment to the old one you must wear exactly one pair of sneakers and you carry the empty suitcase back. You don't have to wear the cap, so if you had one on during the forward trip, you can leave it at the new apartment.

Let $f(i)$ be the minimum possible number of trips from the old apartment to the new one required to move all n caps and all n pairs of sneakers to the new apartment in the scenario where cap has size i.

Your task is to compute $\sum_{i=1}^{W-1} f(i)$ modulo 998244353.

Input

The only line contains two integers n and W ($2 \le n,\ W \le 5 \times 10^{17}, n \times W \le 10^{18}$)

Output

Print one integer: the value of $\sum_{i=1}^{W-1} f(i)$ modulo 998244353.

Samples

Sample input 1	Sample output 1
3 5	8

Sample input 2	Sample output 2
5 5	14

Sample input 3	Sample output 3
67 69	3602