

Sum and Product

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 1024 megabytes

Let $f(n, k)$ be the number of integer pairs (a, b) such that:

- $0 \leq a, b < n$.
- $k(a + b) \equiv ab \pmod{n}$.

Given two integers n and m , you need to calculate

$$\sum_{k=0}^m f(n, k)$$

Since the answer may be large, output it modulo 998 244 353.

Input

There are multiple test cases. The first line of the input contains an integer T ($1 \leq T \leq 10^4$), indicating the number of test cases. For each test case:

The only line contains two integers n and m ($1 \leq n \leq 10^{14}$, $0 \leq m < n$).

It is guaranteed that there are at most 10 test cases with n greater than 10^8 .

Output

For each test case, output one line containing an integer, indicating the answer modulo 998 244 353.

Example

standard input	standard output
4	25
7 2	2500
100 15	3444208
202604 11	165721266
1145141 919810	