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Davis Cup Headache

Problem code: BYCO17C

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Problem description.

India needs to decide its selection for the Davis Cup.

It needs to put forward a selection which should contain exactly G teams, each of which can be a singles/doubles team. N players are available with IDs in the range 1 to N .

2 players can form a doubles team only if their IDs are adjacent to each other. A player can be a part of only one team in a selection.

The Indian coaches are trying to analyse the strengths and weaknesses of each selection and are overwhelmed by the vast selection possibilities. Help them find out how many different selections are possible!

Number D is defined as 998244353

Input

First line of input contains 2 integers N, R .The number of teams required G must be a value in the range 1 to R .

Output

First line contains R values- the number of selections modulo D where G ranges from 1 to R

Constraints

- $1 \leq N \leq 10^{10}$
- $1 \leq R \leq 2^{16}$

Sample input:

4 2

Sample output:

7 13

Explanation

Example case 1. For $N=4$, $R=3$ Let us name the four players as A,B,C,D

- G is 1 : {A}, {B}, {C}, {D}, {A,B}, {B,C}, {C,D}
- G is 2 : {A}{B,C}, {A}{C,D}, {A,B}{C}, {A,B}{D}, {B}{C,D}, {B,C}{D}, {A,B}{C,D}, {A}{B}, {A}{C}, {A}{D}, {B}{C}, {B}{D}, {C}{D}

Author: rvns03

Date Added: 25-02-2017

Time Limit: 1 - 2.1 sec

Source Limit: 50000 Bytes

Languages: ADA, ASM, BASH, BF, C, C99 strict, CAML, CLOJ, CLPS, CPP 4.3.2, CPP 4.9.2, CPP14, CS2, D, ERL, FORTRAN, FS, GO, HASK, ICK, ICON, JAVA, JS, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYPY, PYTH, PYTH 3.4, RUBY, SCALA, SCM chicken, SCM guile, SCM qobi, ST, TCL, TEXT, WSPC

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