8 Pretty ZIP Codes

A newly built city is divided into $n \times m$ square districts arranged in a rectangular grid. The postal service must assign the integers $1, 2, \ldots, nm$ to the districts as their ZIP codes, using each integer exactly once. The director of the postal service believes that a city looks ugly when the difference between the ZIP codes of two districts does not reflect their physical distance. For distinct districts u and v with grid coordinates (r_u, c_u) and (r_v, c_v), respectively, their Manhattan distance is

$$d(u, v) = |r_u - r_v| + |c_u - c_v|.$$

If their ZIP codes are a_u and a_v, the *ugliness* contributed by this pair is

$$U(u, v) = \big|\, |a_u - a_v| - d(u, v) \,\big|.$$

The total ugliness of the city is the sum of $U(u, v)$ over all unordered pairs of distinct districts; each pair is counted exactly once. Let V be the set of all districts. Then the total ugliness is

$$U_{\text{total}} = \sum_{\substack{\{u,v\} \subseteq V \\ u \neq v}} U(u, v) = \sum_{\substack{\{u,v\} \subseteq V \\ u \neq v}} \big|\, |a_u - a_v| - d(u, v) \,\big|.$$

The director wants to know how beautiful the city can possibly be. Given n and m, determine the minimum possible total ugliness over all assignments of ZIP codes. Because the answer may be very large, report this minimum modulo $1\,000\,000\,007$.

8.1 Input

The input consists of a single line containing two integers n and m ($1 \leq n, m \leq 10^9$), the number of rows and columns in the city.

8.2 Output

Output a single integer: the minimum possible total ugliness of the city, modulo $1\,000\,000\,007$.

8.3 Sample Input/Output

Each sample below represents a separate execution of the program.

Sample Input 1	**Sample Output 1**
`1 2`	`0`

Sample Input 2	**Sample Output 2**
`1 5`	`0`

Sample Input 3	**Sample Output 3**
`2 2`	`2`