

Superpowers of 2

You will be given two integers a, b . You are required to output the result of $2^{(2^a)} \bmod b$.

Constraints

$$1 \leq a, b \leq 10^6$$

Input Format

First and only line of the input will contain two integers a, b separated by a single blank space.

Output Format

Output the desired result in a single line.

Sample Input

2 7

Sample Output

2

Explanation

$2^a = 4$, $2^4 = 16$, and $16 \bmod 7$ is 2 .