# 8402 (Simple version)

## Description

Kyaru is playing an interesting game similar to 2048 (not at all). The game is called 8402 with rules below:

1. Initially, there are $n$ numbers and all of them are integers in $[1, m]$ .
2. Two kinds of operations can be performed upon these numbers:
    - Choose a number and change it to a smaller number;
    - Select two equal numbers and replace them with one number equal to their sum.
3. The player can freely perform the two operations above and stop at any time. The score of the game is the largest number in the remaining numbers when he/she chooses to stop.

For a given initial situation, Kyaru wants to know the largest score she can get if she plays in optimal strategy.

Also, Kyaru has a lot of time to kill these days, so she would like to play the game with a lot of numbers. To avoid the bother of making up initial numbers, she designed a random number generator (detailed showing below in C++).

```
//copy the method below into your program:
void generateArray(int* arr, int n, int m, int seed) {
    unsigned x = seed;
    for (int i = 1; i <= n; i++) {
        x ^= x << 13;
        x ^= x >> 17;
        x ^= x << 5;
        arr[i] = x % m + 1;
    }
}
//and call it in main() as below to acquire and store the generated numbers
generateArray(arr, n, m, seed);
//be careful that the integer n indicates the number of initial numbers, whi
```

## Input

A single line containing three integers, indicating $n, m$ and $seed$ appeared in the code block above.

## Output

One integer in one line, indicating the largest final score Kyaru can get.

## Sample Input/Output

### Input 1

```
5 10 233
```

Output 1

```
24
```

Input 2

```
5 50 3
```

Output 2

```
48
```

Input 3

```
1000 1000 666
```

Output 3

```
374784
```

## Constraint

$1 \leq n, m \leq 10^5$ , $1 \leq seed \leq 10^9$ .