Fibonacci numbers (2) P74219_en

For every given pair of natural numbers n and m, compute F_n mod m, where F_n is the n-th Fibonacci number (starting at 0).

Input

The input consists of several pairs of n and m. Assume $0 \leq n \leq 10^9$ and $2 \leq m \leq 10^3$.

Output

For every given pair, print F_n mod m.

Hint

Consider the problem **P61833**.

Sample input

```
0 100
10 100
10 9
1000 876
```

Sample output

```
0
55
1
411
```

Problem information

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