
Fibonacci numbers (1)

P21926_en

The Fibonacci numbers F_n are defined as follows:

$$F_n = \begin{cases} 0 & \text{if } n = 0 \\ 1 & \text{if } n = 1 \\ F_{n-1} + F_{n-2} & \text{if } n \geq 2 \end{cases}$$

Therefore, the first Fibonacci numbers are 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, ...

For every given pair of natural numbers n and m , compute $F_n \bmod m$.

Input

Input consists of several pairs of n and m . Assume $0 \leq n \leq 1000$ and $2 \leq m \leq 10^8$.

Output

For every given pair, print $F_n \bmod m$.

Sample input

```
0 100
10 100
10 9
1000 87654321
```

Sample output

```
0
55
1
41825580
```

Problem information

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