Problem A: Dream Bank

Time limit: 1s; Memory limit: 250 MB

Tuan has a dollar and Tuan wants to invest to make a lot of money. Tuan sent this dollar to a dream bank. Each year, the money increases at the very good growth rate r. The future money (F) after t years is calculated by following:

$$F = \lfloor (1 + r)^t \rfloor$$

where $\lfloor x \rfloor$ is floor function that takes as input a real number x and gives as output the greatest integer that is less than or equal to x.

Given $r = 3 + \sqrt{11}$, please calculate the money F after t years.

Input

The input contains two positive integers t ($1 \le t \le 10^{15}$) and m ($1 \le m \le 10^9+7$).

Output

Output F modulo m.

Examples

Standard Input	Standard Output
1 10	7
2 100	53