Problem B. Dream Bank

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 a 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.

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

Input

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

Output

Output F modulo m.

Examples

Standard Input	Standard Output
1 10	7
2 100	53