Modulo Exponent

Time limit: 1 sec

Given three integer, X, N and K. Calculate the value of X^N mod K where A mod K is the remainder of A divided by K.

Please note the following properties of modulo.

- (**p** + **q**) mod **k** = ((**p** mod **k**) + (**q** mod **k**)) mod **k**
- (**p** * **q**) mod **k** = ((**p** mod **k**) * (**q** mod **k**)) mod **k**

Input

- The first line of input contains three integers **X**, **N** and **K**. where 1 <= x,k <= 9,999 and 1 <= N <= 2^{31}.

Output

Only one line containing the value of X^N mod K

Example

Input	Output
2 5 100	32
2 5 10	2
123 4727 153	81