
Xor

Input file: standard input
Output file: standard output
Time limit: 1 second
Memory limit: 256 megabytes

Given three numbers A , B and Q . Determine the value of the Q_{th} element using the formula below:

$$F(Q) = \begin{cases} A & \text{if } Q=1 \\ B & \text{if } Q=2 \\ F(Q)=F(Q-1) \wedge F(Q-2) & \text{if } Q \geq 3 \end{cases}$$

Input

Only one line contains three numbers A , B and Q ($1 \leq A, B, Q \leq 10^{12}$).

Output

Print the value of the Q_{th} element.

Example

standard input	standard output
5 3 1	5
5 3 2	3
5 3 3	6

Note

In c++ to use xor operator you may write :

```
int x = a ^ b;
```

but if you need to print $a \wedge b$

you should write

```
cout << (a ^ b);
```