Integers Come In All Sizes

Integers in Python can be as big as the bytes in your machine's memory. There is no limit in size as there is: $2^{31}-1$ (c++ int) or $2^{63}-1$ (C++ long long int).

As we know, the result of a^b grows really fast with increasing b.

Let's do some calculations on very large integers.

Task

Read four numbers, a, b, c, and d, and print the result of $a^b + c^d$.

Input Format

Integers a, b, c, and d are given on four separate lines, respectively.

Constraints

 $1 \le a \le 1000$

 $1 \le b \le 1000$

 $1 \le c \le 1000$

 $1 \le d \le 1000$

Output Format

Print the result of $a^b + c^d$ on one line.

Sample Input

9

29 7

27

Sample Output

4710194409608608369201743232

Note: This result is bigger than $2^{63}-1$. Hence, it won't fit in the long long int of C++ or a 64-bit integer.