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.