Problem F2103
Power of Complex Number

A few days later, your little brother starts to learn complex number. As we know, complex number c can be regarded as a point on complex plane, and therefore c^p for all real number $p \in (-\infty, +\infty)$ forms a track and has a beautiful shape. However, the first problem is to compute the c^p for given c and p, so your little brother comes to you again.

Input

The input consists of 3 lines.

The first line contains an integer $a(-10 \leq a \leq 10)$ which is the real part of c.

The second line contains an integer $b(-10 \leq b \leq 10)$ which is the imaginary part of c.

The third line contains an integer $p(0 \leq p \leq 10)$.

Output

Print the real part of c^p in the first line and the imaginary part c^p in the second line. The Input data guarantee that c^p has integer real part and integer imaginary part.

Sample Input

```
1
1
2
```

Sample Output

```
0
2
```