Problem E

Contemplation! Algebra

Input: Standard Input
Output: Standard Output
Time Limit: 1 Second

Given the value of **a+b** and **ab** you will have to find the value of $\mathbf{a^n+b^n}$

Input

The input file contains several lines of inputs. Each line except the last line contains **3** non-negative integers **p**, **q** and **n**. Here **p** denotes the value of **a+b** and **q** denotes the value of **ab**. Input is terminated by a line containing only two zeroes. This line should not be processed. Each number in the input file fits in a signed **32**-bit integer. There will be no such input so that you have to find the value of $\mathbf{0^0}$.

Output

For each line of input except the last one produce one line of output. This line contains the value of $\mathbf{a^n+b^n}$. You can always assume that $\mathbf{a^n+b^n}$ fits in a signed 64-bit integer.

Sample Input	Output for Sample Input
10 16 2 7 12 3 0 0	68 91

Problem setter: Shahriar Manzoor, Member of Elite Problemsetters' Panel
Special Thanks: Mohammad Sajjad Hossain