Fibonacci Modified

We define a *modified* Fibonacci sequence using the following definition:

Given terms t_i and t_{i+1} where $i \in [1, \infty)$, term t_{i+2} is computed using the following relation:

$$t_{i+2} = t_i + (t_{i+1})^2$$

For example, if term $t_1 = 0$ and $t_2 = 1$, term $t_3 = 0 + 1^2 = 1$, term $t_4 = 1 + 1^2 = 2$, term $t_5 = 1 + 2^2 = 5$, and so on.

Given three integers, t_1, t_2, and n, compute and print term t_n of a *modified Fibonacci sequence*.

Note: The value of t_n may exceed the range of a 64-bit integer. Many submission languages have libraries that can handle such large results but, for those that don't (e.g., C++), you will need to be more creative in your solution to compensate for the limitations of your chosen submission language.

Input Format

A single line of three space-separated integers describing the respective values of t_1, t_2, and n.

Constraints

- $0 \leq t_1, t_2 \leq 2$
- $3 \leq n \leq 20$
- t_n may exceed the range of a 64-bit integer.

Output Format

Print a single integer denoting the value of term t_n in the modified Fibonacci sequence where the first two terms are t_1 and t_2.

Sample Input

```
0 1 5
```

Sample Output

```
5
```

Explanation

The first two terms of the sequence are $t_1 = 0$ and $t_2 = 1$, which gives us a modified Fibonacci sequence of $\{0, 1, 1, 2, 5, 27, \ldots\}$. Because $n = 5$, we print term t_5, which is 5.