

# 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  $\{0, 1, 1, 2, 5, 27, \dots\}$ . Because  $n = 5$ , we print term  $t_5$ , which is 5.