

## Problem E: sqrt log sin

An evil professor has just assigned you the following problem.

A sequence is defined by the following recurrence:

Determine  $x_{1000000}$ .

### Input Specification

Input consists of a number of lines, each containing one integer, a value of  $i$ , no less than zero and no greater than one million. Input is followed by a single line containing the integer  $-1$ . This last line is not a value of  $i$  and should not be processed.

### Sample Input

0  
-1

### Output Specification

For each value of  $i$  in the input (but not the final  $-1$ ), output the corresponding value of  $x_i$  modulo 1000000.

### Output for Sample Input

1

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