PROBLEM SOLVING WITH PYTHON

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1. CSES Problem Set

1.1. Introductory Problems

1.1.1. Weird Algorithm

Consider an algorithm that takes as input a positive integer n. If n is even, the algorithm divides it by two, and if n is odd, the algorithm multiplies it by three and adds one. The algorithm repeats this, until n is one. For example, the sequence for $n = 3$ is as follows:

$$3 \to 10 \to 5 \to 16 \to 8 \to 4 \to 2 \to 1$$

Your task is to simulate the execution of the algorithm for a given value of n.

Input: The only input line contains an integer n.

Output: Print a line that contains all values of n during the algorithm.

Constraints: $1 \leq n \leq 10^6$

Example:

- Input$(1) \implies$ Output $(3, 10, 5, 16, 8, 4, 2, 1)$

1.1.2. Missing Number

You are given all numbers between $1, 2 \ldots, n$ except one. Your task is to find the missing number.

Input: The first input line contains an integer n. The second line contains $n - 1$ numbers. Each number is distinct and between 1 and n (inclusive).

Output: Print the missing number.

Constraints: $2 \leq n \leq 2 \cdot 10^5$

Example:

- Input$(5, \{2, 3, 1, 5\}) \implies$ Output (4)