**Find the Missing Number**

You are given an array arr containing n-1 distinct integers. The array consists of integers taken from the range 1 to n, meaning one integer is missing from this sequence. Your task is to find the missing integer.

**Input:**

An integer array arr of size n-1 where the elements are distinct and taken from the range 1 to n.  
Example : arr = [1, 2, 4, 5]

**Output:**

Return the missing integer from the array.  
Example: Missing number: 3

**Constraints:**

* The array contains exactly n-1 distinct integers, and all integers are in the range [1, n].
* You must solve the problem with a time complexity of O(n).
* The space complexity should be O(1) (constant space).
* 1 ≤ n ≤ 10^6

**Test Cases:**

1. Test Case 1  
   Input: [1, 2, 4, 5]

Output: 3

1. Test Case 2:  
   Input: [2, 3, 4, 5]

Output: 1

1. Test Case 3:  
   Input: [1, 2, 3, 4]

Output: 5

1. Test Case 4:  
   Input: [1]

Output: 2

1. Test Case 5:  
   Input: [1, 2, 3, ..., 999999]

Output: 1000000

**Edge Cases:**

1. The smallest possible array where n = 2. The missing number can only be 1 or 2.
2. The largest possible array where n = 10^6.