

Given a list of integers from 1 to n , with one number missing, write a python program to find the missing number?

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Using Sum Formula

The sum of first n natural numbers is

$$\text{sum} = \frac{n(n+1)}{2}$$

If we subtract the sum of the given list from this expected sum, we get the missing number.

```
def find_missing(lst, n):  
    expected_sum = n * (n + 1) // 2  
    actual_sum = sum(lst)  
    return expected_sum - actual_sum
```

# Example

```
n = 10  
numbers = [1, 2, 3, 4, 5, 6, 7, 9, 10] # 8 is missing  
print("Missing number:", find_missing(numbers, n))
```

✅ **Output**

Missing number: 8

