

# Experiment ‘p\_1\_2’ Results

December 18, 2025

**Experiment outcome:** SUCCESS

**Bad responses:** 0

**Responses containing assume :** 0

**Resolution attempts:** 1

**Hard fails (resolution):** 0

**Soft fails (resolution):** 0

**Verification attempts:** 1

## Problem Specification

**Problem name:** p\_1\_2

**Natural language statement:** Write a method that returns the sum of the first ten positive integers, 1 + 2 + ... + 10.

**Method signature:** p\_1\_2() returns (i : int)

## Ensures

- $i == (10 * 11) / 2$

## GenAI interactions

Below you will find all interactions between the ‘user’ (program) and the ‘assistant’ (OpenAI).

### Program → GenAI

You are given the following task to perform in Dafny:

Write a method that returns the sum of the first ten positive integers,  $1 + 2 + \dots + 10$ .

The signature should be:

```
method p_1_2() returns (i : int)
```

The method should respect the following contract:

```
ensures i == (10 * 11) / 2
```

Produce and show only the Dafny body of this method, including the curly braces that

surround it. Do not show the signature nor contract. You must not use ‘assume’

anywhere in your code.

### GenAI → Program

System fingerprint:

ID: chatcmpl-Co4LhWDjlOmq3NW72OJRVh9RQMxdj

Model: gpt-5.1-chat-latest

Created at: 1766049153

Finish reason: stop

Usage: 272 tokens in, and 228 tokens out

```
{
    var sum := 0;
    var k := 1;
    while k <= 10
        invariant 1 <= k && k <= 11
        invariant sum == (k - 1) * k / 2
    {
        sum := sum + k;
        k := k + 1;
    }
    i := sum;
}
```

### Final Program

```
method p_1_2() returns (i : int)
    ensures i == (10 * 11) / 2
{
    var sum := 0;
```

```
var k := 1;
while k <= 10
    invariant 1 <= k && k <= 11
    invariant sum == (k - 1) * k / 2
{
    sum := sum + k;
    k := k + 1;
}
i := sum;
```

## Total Token Usage

**Input tokens:** 272

**Output tokens:** 228

**Reasoning tokens:** 128

**Sum of ‘total tokens’:** 500

## Experiment Timings

**Overall Experiment** started at 1766049154896, ended at 1766049158737, lasting 3841ms (3.84 seconds)

**Iteration #1** started at 1766049154897, ended at 1766049158737, lasting 3840ms (3.84 seconds)