

# Experiment 'p4\_1\_b\_sum\_squares' 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:** p4\_1\_b\_sum\_squares

**Natural language statement:** Write a method with loops that computes the sum of all squares between 1 and 100 (inclusive).

**Method signature:** p4\_1\_b\_sum\_squares() returns (sum: int)

## Ensures

- `sum == 338350`

## 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 with loops that computes the sum of all squares between 1 and 100 (↪ inclusive).

The signature should be:

method p4\_1\_b\_sum\_squares() returns (sum: int)

The method should respect the following contract:

ensures sum == 338350

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-Co4ZPwAkfPxiredh96rK4mwn9c9GP

**Model:** gpt-5.1-chat-latest

**Created at:** 1766050003

**Finish reason:** stop

**Usage:** 258 tokens in, and 107 tokens out

```
{
  var i := 1;
  sum := 0;
  while i <= 100
    invariant 1 <= i <= 101
    invariant sum == (i - 1) * i * (2 * (i - 1) + 1) / 6
  {
    sum := sum + i * i;
    i := i + 1;
  }
}
```

### Final Program

```
method p4_1_b_sum_squares() returns (sum: int)
  ensures sum == 338350
{
  var i := 1;
```

```
sum := 0;
while i <= 100
  invariant 1 <= i <= 101
  invariant sum == (i - 1) * i * (2 * (i - 1) + 1) / 6
{
  sum := sum + i * i;
  i := i + 1;
}
}
```

## Total Token Usage

Input tokens: 258

Output tokens: 107

Reasoning tokens: 0

Sum of 'total tokens': 365

## Experiment Timings

**Overall Experiment** started at 1766050005554, ended at 1766050009036, lasting 3482ms (3.48 seconds)

**Iteration #1** started at 1766050005554, ended at 1766050009036, lasting 3482ms (3.48 seconds)