

# Experiment ‘p5\_1\_a\_smallest’ 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:** p5\_1\_a\_smallest

**Natural language statement:** Write a method that returns the smallest of the arguments.

**Method signature:** p5\_1\_a\_smallest(x: real, y: real, z: real) returns (smallest: real)

## Ensures

- `smallest <= x && smallest <= y && smallest <= z`
- `smallest == x || smallest == y || smallest == z`

## 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 smallest of the arguments.

The signature should be:

```
method p5_1_a_smallest(x: real, y: real, z: real) returns (smallest: real)
```

The method should respect the following contract:

```
ensures smallest <= x && smallest <= y && smallest <= z, ensures smallest == x ||  
    ↪ smallest == y || smallest == z
```

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-Co4tNU0DGMN3CiKCPaS98bqosbuF9

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

**Created at:** 1766051241

**Finish reason:** stop

**Usage:** 298 tokens in, and 129 tokens out

```
{  
  var s := x;  
  if y < s {  
    s := y;  
  }  
  if z < s {  
    s := z;  
  }  
  smallest := s;  
}
```

### Final Program

```
method p5_1_a_smallest(x: real, y: real, z: real) returns (smallest: real)  
  ensures smallest <= x && smallest <= y && smallest <= z  
  ensures smallest == x || smallest == y || smallest == z  
{  
  var s := x;
```

```
if y < s {  
  s := y;  
}  
if z < s {  
  s := z;  
}  
smallest := s;  
}
```

## Total Token Usage

**Input tokens:** 298

**Output tokens:** 129

**Reasoning tokens:** 64

**Sum of ‘total tokens’:** 427

## Experiment Timings

**Overall Experiment** started at 1766051242407, ended at 1766051246360, lasting 3953ms (3.95 seconds)

**Iteration #1** started at 1766051242410, ended at 1766051246360, lasting 3950ms (3.95 seconds)