

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: chatmpl-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)