Experiment ‘p5_9_coneVolume’ 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_9_coneVolume
Natural language statement: Write a method that computes the volume of a cone with a circular base, given radius and height.
Method signature: p5_9_coneVolume(r: real, h: real) returns (volume: real)

Ensures

- `volume == (1.0 / 3.0) * 3.14159 * r * r * h`

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 computes the volume of a cone with a circular base, given radius and
    ↪ height.

The signature should be:

method p5_9_coneVolume(r: real, h: real) returns (volume: real)

The method should respect the following contract:

ensures volume == (1.0 / 3.0) * 3.14159 * r * r * h

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-Co4y5XccEUYXKGKV6y5N9K75mBtNs
Model: gpt-5.1-chat-latest
Created at: 1766051533
Finish reason: stop
Usage: 306 tokens in, and 47 tokens out

```
{
  volume := (1.0 / 3.0) * 3.14159 * r * r * h;
}
```

Final Program

```
method p5_9_coneVolume(r: real, h: real) returns (volume: real)
       ensures volume == (1.0 / 3.0) * 3.14159 * r * r * h
{
  volume := (1.0 / 3.0) * 3.14159 * r * r * h;
}
```

Total Token Usage

Input tokens: 306
Output tokens: 47
Reasoning tokens: 0
Sum of 'total tokens': 353

Experiment Timings

Overall Experiment started at 1766051535490, ended at 1766051538308, lasting 2818ms (2.82 seconds)
Iteration #1 started at 1766051535491, ended at 1766051538308, lasting 2817ms (2.82 seconds)