

# SciInstruct

## Physics

How to determine the harmonic vibration frequency of a single degree of freedom system?

## Chemistry

Try to calculate the boiling point of water at 670kPa external pressure.

## Math

The number of asymptotes of the curve  $y = \frac{x^2 + x}{x^2 - 1}$  is \_\_\_\_.

## Formal Proofs (Lean)

```
theorem const_add_term {α}
[add_comm_monoid α] (k n x a
a') (h : k + a = a') : \n k + @term
α _ n x a = term n x a' :=
```

## QA dataset

Problem 1  
Answer 1

.....  
Problem n  
Answer n

LLMs

## Bootstrapped

Problem 1  
CoT 1  
Answer 1

.....  
Problem n  
CoT n  
Answer n

## Self-Reflective Annotation

QA  
w/o R

CoT



Critic & Revise



Reasoning steps (R)



Annotate Sample

Labeled Data  
Positive Data

Negative Data

Sample

LMs

Instruction  
-quality  
Classifier

## Human Conclusion

Comprehension  
mistakes

Calculation  
mistakes

False reasoning

Filter Stage

Filter negatives  
Retain positives

Collection

Annotation

Filtering