Expert STEM Problems

Dataset specification

GR-LLM-01 · LLM · Early access · updated 2026-11-02

1 - Overview

Original research-level science problems with expert-written solutions.

Original problems in mathematics, physics, chemistry and biology written by domain experts, each with a reference answer and a step-by-step solution. Problems are long, multi-constraint research scenarios with multi-part answers, written to stay hard for current frontier models.

- **Subjects:** 4
- **Level:** Research
- **Language:** English
- **Solutions:** Step-by-step
- **Modalities:** Text, LaTeX

2 - Use cases

- Reinforcement learning with verifiable answers
- Supervised fine-tuning on expert reasoning
- Held-out evaluation of frontier reasoning models

3 - Content

- **Subjects:** Mathematics, physics, chemistry and biology
- **Problem style:** Open-ended research scenarios with several constraints and a multi-part answer
- **Answers:** Reference answer per problem, suited to automatic checking
- **Solutions:** Step-by-step expert analysis in Markdown with LaTeX
- **Language:** English

4 - Provenance

- **Authoring:** Original problems written by subject experts
- **Excluded:** Published competition problems and figures reproduced from papers are not part of this dataset
- **Volume:** Confirmed per order

5 - Data schema

- `id` **(string):** Unique problem identifier.
- `subject` **(string):** Mathematics, physics, chemistry or biology.
- `question` **(string):** Problem statement (Markdown + LaTeX).
- `analysis` **(string):** Step-by-step expert solution.
- `answer` **(string):** Reference final answer.

6 - Directory layout

```
expert-stem-problems/         # indicative; final layout confirmed per delivery
|-- data_card.md
`-- problems/
    |-- biology.jsonl
    |-- chemistry.jsonl
    |-- mathematics.jsonl
    `-- physics.jsonl
```

7 - Evaluation sample

- **Availability:** On request
- **Size:** On request
- **Formats:** JSON
- **Contents:** Original problems from each subject with solutions and answers

8 - License and contact

- **Graviti Commercial Data License:** Commercial training and evaluation rights. Volume and exclusivity agreed per order.
- **Dataset page:** https://www.graviti.com/datasets/expert-stem-problems/
- **Sales:** sales@graviti.com