Instructions for students:

This is the first round of the 2024–2025 ARML Power Contest and take place on Saturday, October 26.

You will have 45 minutes to complete this set of problems. During this time you are encouraged to work together, communicating and sharing ideas. It is important that everyone understands the problem before splitting up into smaller groups. In particular, make sure each person understands how the various computations work and the meanings of the vocabulary terms and notation introduced in the problems. Make sure your solutions adhere to any such vocabulary and notation.

If you are taking part in this contest in person, language translators may be used, but no other electronic devices are allowed. This includes, but is not limited to, calculators, computers, tablets, and smartphones. If you are participating online, you may use meeting and collaboration tools, but you are on your honor not to use any other software or websites. In particular you should not use any mathematics-related or AI software or websites.

The topic of the first contest this year is finding efficient ways to determine an unknown polynomial knowing limited information about it and a few of its values.

Please pay careful attention to the directions and information in each contest question, as that may save you quite a bit of writing—you don't have to reproduce information already present in the problem! Remember that this is a contest of mathematical writing, and many problems require mathematical justification or proof. Be clear and concise. You may refer to the result of an earlier problem in your work—even if you didn't solve that problem. You may also refer to your work from an earlier problem. You may not refer to later problems, however, even if it does not create circular arguments.

Use dark pencil or ink and please be legible. *Write on only one side of each answer sheet.* You may submit several answers on the same answer sheet, but be sure to submit only one solution for each problem! Answers on the backs of sheets that are not seen by the graders will receive no credit. If multiple answers to a single problem are found, all will be graded and the team will earn the *lowest* score for any of their solutions. At the conclusion of the contest, submit your solutions *in order* to your coach. Problems that are out of order (except when multiple solutions are written on the same page) have sometimes been overlooked by graders, and there is unfortunately no way to give credit retroactively if this happens.

The contest has a total of 40 points possible. You will be given a copy of the scoring sheet; the point value of each problem is also listed on the problem sheets.

You are encouraged to include any comments or concerns about the problem on the comment sheet.

Contests will be mailed in or submitted electronically, and scores will be posted online as soon as possible. The solutions will also be posted for coaches to download.

Good luck, and enjoy!

2024–2025 ARML Power Contest
Round 1
Grading Sheet

Team ID: _____

1. ____ [2]
2. ____ [2]
3. ____ [2]
4. ____ [2]
5. ____ [1]
6. ____ [1]
7. ____ [2]
8. ____ [2]
9. ____ [2]
10. ____ [2]
11. ____ [2]
12. ____ [3]
13. ____ [3]
14. ____ [3]
15. ____ [3]
16. ____ [4]
17. ____ [4]

Total score: _____

We have complied with the rules of this contest. _____
(Coach's signature)

_____
(Date)

2024–2025 ARML Power Contest
Round 1
Answer Sheet

Page ____ of ____. Problem(s) _____.

Team ID _____.

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Answer Sheet

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