Week05 – conclusion of rep theory; begin error-correcting codes

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Remember the third assignment on representation:

- [problem set 03] [pdf] due 2024-02-16
- [problem set 03 solutions]

I was originally planning to give a lecture on usage of the computer-algebra package/language `GAP` to solve group-theoretic problems, but I second-guessed this decision because I anyhow plan to use `sage-math` in the discussion of error-correcting codes, and it seems redundant to introduce both. But: if you are interested, here are some notes that I made for a lecture a couple of years ago about `GAP` usage (the notes in particular contain links for installation etc…).

- [GAP notes]

I finished up the discussion of representation theory on Monday; see below for the notes. In this lecture, I completed the remaining "unfinished business" by giving the proof that the number if irreducible (complex) representations of a finite group G is equal to the number of conjugacy classes in G. I also tried to give some discussion of "applications of group representations to related parts of mathematics" – the notes probably don't give all details of that discussion (ask if you want a reference!).

- [RT notes 2024-02-12] [pdf]

On Wednesday, I begin talking about *error-correcting codes*. Remember that I listed a few references to consult.

- [ECC notes 2024-02-14] [pdf]

I plan to sometimes use the computer-algebra system `sage-math` to accompany the lectures/presentation.

- [suggestions for using / installing `sage-math`]
- Example of ternary code, in `sage-math` [via `cocalc`] [download notebook]

Bibliography