Number Theory Course Notes

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Cathy's recommended book: Rosen

Cathy's Suggestions:

- Learn peer review from my homeworks

- Peer review

    – If on Canvas, print and handwrite comments
    – 2.5 inch margins

- LaTeX

    – Easy to read
    – Easy to peer review

- Group work!

    – Devoted about one class a week to group work

- Make sure things are consistent!

- End first

Topics to cover (347)

- Congruences

- Chinese remainder theorem

- Prime numbers and divisors

- Diophantine equations

- Quadratic Reciprocity

Topics to cover (348)

- Nonlinear Diophantine equations

- Sums of squares

- Theory of partitions

- Geometric number theory

- Distribution of primes

Corresponding Textbook Chapters

- Fun: Chapter 12

- For sure: 7.1—7.5, 9.1—9.4, 13.1—13.3

- Maybe: 13.4

Changes to make

- Add reasoning at the end of the horse argument on HW 2 to "prove" that Winnie's color equals Tigger's color

- Note that one of the homework questions is theorem 4.8...

- Had one midterm request for weekly quizzes!

- Had one midterm request for reading assignments.

- Have one complaint about peer review and its (lack of) usefulness

- Have one complaint about group work/lecture and its lack of similarity to homework

- For homework 4, introduce the inverse function to f by showing that a self-conjugate partition is determined by $\lambda_1, \ldots, \lambda_k$. Then given $\rho_1, \ldots, \rho_k$, it's easy to define $\lambda_1, \ldots, \lambda_k$ and the rest is determined.

- Add reading comprehension assignments!