Math 131 homework: number theory

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1 Homework

Notes also available as PDF.

Practice is absolutely critical in this class.

Groups are fine, turn in your own work. Homework is due in or before class on Mondays.

- Section 5.1 (prime numbers):
  - 3, 4, 5, 7
  - 14, 15, 16
  - 80
- Section 5.1 (factorization):
  - 34-36
  - 56-59
- Section 5.4 (modular arithmetic):
  - 9-13 (this is modulo 5, and the inverse of a is a number b such that $a + b \equiv 0 \pmod 5$)
  - 29, 31
  - 33, 35, 37, 39
- Section 5.1 (divisibility rules):
  - 21-24
  - 43-44
  - Take a familiar incomplete integer, _679_. Using the expression of _679_ as $N = 10^4 \cdot x_4 + x_0 + 6790$, use $8 \mid N$ to find x_0? Given that, use $9 \mid N$ to find x_4. Now if 72 turkeys cost $_679_, what is the total?

Note that you *may* email homework. However, I don't use Microsoft™ products (*e.g.* Word), and software packages are notoriously finicky about translating mathematics.

If you're typing it (which I advise just for practice in whatever tools you use), you likely want to turn in a printout. If you do want to email your submission, please produce a PDF or PostScript document.