MATH 281 FALL 2023
HOMEWORK 1
"DUE" OCTOBER 2, 2023.

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Recall: this homework will not be graded, but I will select approximately two problems from it for the quiz on Wednesday, October 4. (I will change the numbers in the problems slightly, so there's no point trying to memorize the answers.)

Required problems:
(Quiz problems drawn from these.)

- Section 12.1: 5, 7, 13, 17, 33, 43, 51.
- Section 12.2: 1, 5, 11, 21, 25, 31, 37, 43.
- Section 12.3: 1, 5, 11, 17, 23, 39, 41, 49, 53.

If you got help with one of these problems, solve a similar one on your own!

Suggested challenge problems:
(Conceptually interesting problems in the text to think about. Will not be on a quiz.)

- Section 12.2: 44, 51, 52.
- Section 12.3: 57, 61–63.

Comments on some of these problems:

- 12.2.43. There's a cute, computation-free solution to this.
- 12.3.1. Problems like this make good warm-up exam problems...
- 12.3.57. Part of the problem should be checking that $(1, 0, 0)$, $(0, 1, 0)$, $(0, 0, 1)$, and $(1, 1, 1)$ really are the vertices of a regular tetrahedron, and that $(1/2, 1/2, 1/2)$ is equidistant from them.
- 12.3.61 and 62: these properties are used frequently in more advanced mathematics (e.g., real analysis).

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