Math 15300/14 Homework 8
Due date: Thursday, March 5, 2020, 5pm (in my mailbox in Eckhart basement)

Please present your solutions clearly and in an organized way. Think of it this way: if you show it to another student in this class, he/she should be able to understand it without needing to ask you questions.

Wolfram Alpha

Wolfram Alpha is a very useful tool. Check it out if you have not used it before: `http://wolframalpha.com`. For example, try entering the following text into Wolfram Alpha:

- `plot y = sin(1/x)` (direct link)
- `integrate x/(x^2+2x+5)^2 dx` (direct link)
- `eevee curve` (direct link)

February 27

Goals:

- Practice using gradients to calculate directional derivatives

Section 16.2:

- 1: Do this problem in 2 ways: (1) via Definition 16.2.2, and (2) via Theorem 16.2.4. (Make sure you get the same answer both times!)
- 3, 9, 11, 15, 21 (You can do these problems in whatever way you like)
- 29, 40

March 3

Goals:

- Interpret gradients as direction of steepest increase
- Calculate derivatives using chain rule

Section 16.2:

- 23, 25

Section 16.3:

- 9, 15, 17, 23, 25 (The volume of a cone is $V = \frac{1}{3}\pi r^2 h$.)

This is all for HW 8.