Assignment 7, Due Friday April 15

1 Convolution

Pick two functions of your own choice, calculate the convolution, graph both functions and the convolution, explain whether it makes sense graphically.

2 Deltas

Some parts of Boas section 8.11 number 20: you need to do the second half of 11.19(a), and you need to do either part d or part e (your choice).

Then do number 21.

2.1 Directional Derivative and Gradient

Boas §6.6 # 1, 2, 5

2.2 Computational

It's been a while since we did a computer exercise. My mistake! We can use python to calculate gradients (and people often do). Google around a bit and figure out at least one function that might do that.

You might find the numpy builtin function (`https://numpy.org/doc/stable/reference/generated/numpy.gradient.html`). You might find another one.

Turn in a Jupyter notebook where you reproduce the example from the documentation, explain what was calculated, and then do a similar calculation (e.g. plug in some different values or some different function), and explain if the result is what you expected.

Turn in your Jupyter Notebook on Moodle

2.3 Line Integrals

We will cover these on Tuesday. If this makes the homework assignment too long, let me know before Friday, and we can move these to next week's HW

Boas §6.8 (Line integrals) # 1, 6, 8