

1 Convolution

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

1.1 Directional Derivative and Gradient

Boas §6.6 # 1, 2, 5

1.2 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://docs.scipy.org/doc/numpy/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

1.3 Line Integrals – Due Monday when you return

Boas §6.8 (Line integrals) # 1, 6, 8