PHYS 301 Electricity and Magnetism Fall 2019

HW #08

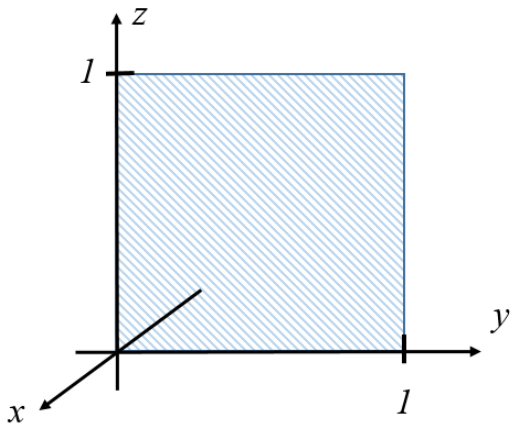
From Griffiths, READ sections 1.4 (again!) & 2.1

Do Griffiths problems 1.56 & 1.58 (consider how you might approach 1.57)

AQ1: Derive the differential version of the Ampere-Maxwell Law from the integral form using Stokes' Theorem. Recall from class that you will need equation (5.45) to do this.

AQ2: Verify Stokes' Theorem for the area bound by the path in the figure below for the following function:

$$\vec{v} = (2xz + 3y^2)\,\hat{j} + 4yz^2\hat{k}$$



AQ3: Compute the volume integral of the function $f(x, y, z) = x^2 y z^3$ over a volume defined by the rectangular prism (cuboid) of sides of length a, b, and c, as in the figure below.