

General Stuff

- Office Hours
 - T: 12:30 - 1:30, Th: 10 - 11
- Final Exam May 6th from 12:00pm - 3:00pm
- Quiz 6 Thursday 4/22
- Topics include 7.6 - 8.2
 - 1 problems
 - 15 minutes to take quiz
 - 5 minutes to upload to gradescope
 - 11:15 - 11:45 questions before quiz
 - 11:45 - 12:00 quiz
 - 12:00 - 12:05 uploading
- Lab 11 due tonight!

1. Let $F = (0, 0, x^2)$. Calculate the flux integral of F through the surface given by the sphere of radius 2 such that $x, y, z \leq 0$. with outward facing normal

2. Let D be the disc of radius 3 at a height of 2. Let n be the downward facing normal. Compute the flux integral of $G = (x + y, x - y, z)$.

3. Let S be the surface given by the parametrization

$$\Phi(r, \theta) = (r \cos(\theta), r \sin(\theta), r^2)$$

from $r = 0$ to $r = 1$, and $\theta = 0$ to $\theta = 2\pi$. Compute the line integral around the counter-clockwise boundary ∂S of the vector field $F(x, y, z) = (x^2 - y, z^2 - x, x + y)$ using Stoke's Theorem.

4. Let Cyl be the surface given by the cylinder of height 4 from $z = -2$ to $z = 2$ and radius $r = 3$. Let $G(x, y, z) = (x^2 + y^2, 0, z)$. Compute the integral

$$\iint_{\text{Cyl}} \nabla \times G \cdot dS.$$