General Stuff

- Office Hours

    T: 12:30 - 1:30, Th: 10 - 11

- Midterm 6 Thursday 4/13

- Topics include 7.3 - 7.5 (?)

    2 problems

    30 minutes to take quiz

    5 minutes to upload to gradescope

    11:15 - 11:25 questions before quiz

    11:25 - 11:55 quiz

    11:55 - 12:05 uploading

- Lab 10 due tonight!

1. Consider the parametrized surface given by

$$\Phi(u, v) = (2v\cos(u), 2v\sin(u), v^2).$$

Find the tangent plane at the point corresponding to $(u_0, v_0) = (\pi, 2)$. (Bonus: what is the cartesian equation $z = f(x, y)$ for this surface?)

2. Let S be the same surface as before

$$\Phi(u, v) = (2v\cos(u), 2v\sin(u), v^2)$$

and let B_2 be the ball of radius $r = 2$ in the uv-plane. Find the area of the surface $\Phi(B_2)$.

3. Compute the scalar surface integral

$$\iint_{\Phi(B_2)} \sqrt{z+1}\, dS$$

using the surface from before.

4. Let A be the surface of the graph $z = x^2 - y^2$ over the unit box $[-1, 1] \times [-1, 1]$. Compute the integral

$$\iint_A \sqrt{x^2 + y^2 + 1/4}\, dS.$$