MATH 223          Fall 2022
Assignment 32
**Due: Friday December 9**

## Reading

Read carefully Section 8.6 "Stokes Theorem" in our text *Multivariable Calculus: A Linear Algebra Based Approach.*

## Writing

Write out careful and complete solutions of Exercises 27, 29a and 31 of Chapter 8.

Some modifications in the Exercises:

For Exercise 27: The $t$ values should range from $-\pi/2$ to $\pi/2$, not 0 to $2\pi$.

For Exercise 29a: The formula for the **surface integral of the scalar function $f$ over $S$** should be

$$\iint_S f\, d\sigma = \iint_A f(\sigma(s,t)|\, \sigma_s(s,t) \times \sigma_t(s,t)\, |\, ds\, dt$$

And the function $f$ should be changed to $f(x,y,z) = \dfrac{x}{\sqrt{4y+5}} + z.$

For Exercise 31: Use $\int_S \mathbf{F} \bullet d\mathbf{S} = \int_D \mathbf{F}\big(\sigma(s,t)\big) \bullet \big(\sigma_s(s,t) \times \sigma_t(s,t)\big)\, ds\, dt$