

MATH 223 Fall 2023
Assignment 32
Due: Wednesday December 6

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 2π .

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 $f(x, y, z) = \frac{x}{\sqrt{4y+5}} + z$.

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

