

Math 210 (Lesieutre)
Chapter 14 review
April 25, 2017

Problem 1. Compute the flux of the vector field $\mathbf{F} = \langle 2x^2, xz^4, \sin y \rangle$ across a tetrahedron with vertices at the points $(1, 0, 0)$, $(0, 2, 0)$, and $(0, 0, 3)$.

Problem 2. What does each of the following types of integral represent? Can you remember how to compute one?

a) $\int_C f \, ds$

b) $\int_C \mathbf{F} \cdot d\mathbf{r}$

c) $\int_C \mathbf{F} \cdot \mathbf{n} \, ds$

d) $\iint_S f \, dS$

e) $\iint_S \mathbf{F} \cdot \mathbf{n} \, dS$

Problem 3. Try to recall the main integration theorems from this chapter.

a) Fundamental theorem for line integrals.

b) Green's theorem, circulation form.

c) Green's theorem, flux form.

d) Stokes' theorem

e) Divergence theorem

Problem 4. (We'll vote on an integral to compute.)