

## Physics 263: BTM Problem Set #14

These problems are from BTM Chapter 7, “Vector Calculus,” covering divergence of a vector field (mostly). Please ask questions! The problems are due by 5:30pm in the box in 1011 on Tuesday, May 16.

1. **BTM Problem 7.6.9.** An application of Green’s theorem.
2. **BTM Problem 7.7.1.** Just a simple divergence calculation; just apply the definition.
3. **BTM Problem 7.7.3.** Making sure that Gauss’ theorem really works by doing an integral two ways.
4. **BTM Problem 7.7.4.** Another Gauss’ theorem application.
5. **BONUS: BTM Problem 7.10.1.** Some identities you’ll want to remember.
6. **BONUS: BTM Problem 7.11.4.** A nice problem, which introduces the Dirac delta function (with which you will become quite familiar in future physics classes).