

Physics 263: BTM Problem Set #13

These problems are from BTM Chapter 7, “Vector Calculus,” covering curl of a vector field (mostly). Please ask questions! The problems are due by 5:30pm in the box in 1011 on Friday, May 12.

1. **BTM Problem 7.5.5.** Comparing gradients in different coordinate systems and some other basic gradient stuff, like path independence.
2. **BTM Problem 7.6.2** Applying the basic criterion for a “conservative” field.
3. **BTM Problem 7.6.4.** If a field is conservative, it can be written as a gradient of some scalar field. This problem applies this to an example vector field.
4. **BTM Problem 7.6.5** Checking another field for whether it could be a gradient.
5. **BONUS: BTM Problem 7.6.10.** A cute application of Stokes’ theorem.
6. **BONUS: BTM Problem 7.6.13.** Stokes’ theorem strikes again.