

## Physics 263: BTM Problem Set #4

This assignment gives more practice on the basic integration tools in Chapter 2. Please start early and ask questions! It is due by 5:30pm in the box in 1011 on Tuesday, April 11.

1. **BTM Problem 2.1.4.** You've very possibly seen this "trick" before, but it is worth recalling.
2. **BTM Problem 2.2.3.** More practice with basic substitutions and also the gamma function.
3. **BTM Problem 2.2.4.** The integral formula for the arc length of a curve. This is a good lead-in to line integrals (which come up regularly in physics).
4. **BTM Problem 2.2.10.** A prototype example of how to generalize an integral by introducing a parameter. In this case, you take a derivative with respect to that parameter and then integrate to get back the desired integral. A technique worth learning!