

Do you want to be good at integration?

This handout is for those of you who want to improve your integration skills and are willing to put in the work to achieve that goal.

Included in this handout are:

- a list of the integrals you are expected to know by sight (*i.e.* memorize);
- a list of the integration techniques that you are expected to know for this class, and various subcases for each of these techniques;
- a template of a worksheet where you can write notes about each technique (you can copy this sheet to get more worksheets or print them from the website);
- a template of a worksheet where you can write notes and list examples for each technique subcase (again you can photocopy or print more copies of this sheet);
- filled-in samples of the technique and subcase worksheets for the u -substitution technique and the subcase involving back-substitution (so you can see how one might fill out one of these worksheets).

I highly recommend filling out these sheets for as many techniques and subcases as you can (especially those that you find confusing). After you choose example integrals for each subcase, work them out on separate paper and check your answers by differentiating. Filling out these worksheets is *not* a good substitute for practicing integration problems. Only by doing many many many integrals will you develop the intuition you need to be good at integration.

You do not have to do any of this. You do not have to hand this in. I am just trying to help those of you who are feeling a little overwhelmed by all these integration techniques and want a more directed way to study the material.

You may find it helpful to work in groups, either working together on each worksheet or working separately and then explaining and sharing your answers with the group.

Good luck, and let me know if this helps!