Math 2E − Suggested Homework 4

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Reading: Sections 15.9, 16.1, and 16.2. For section 15.9, if you understand Example 2, 3, and 4, you'll be fine. Ignore examples 1 and the derivation of the Jacobian. You might also want to check out my YouTube videos about it: Part 1, Part 2, and Part 3. In section 16.1, ignore Examples 4 and 5 (unless you like physics). In section 16.2, ignore Example 3 and all the (awkward) derivations.

Note: For this homework/quiz, in section 16.2, you're only responsible for $\int_C f(x, y)ds$ I won't ask you yet about $\int_C f(x, y)dx$ or $\int_C f(x, y)dy$ or $\int_C \mathbf{F} \cdot d\mathbf{r}$, that will be part of HW 5 / Quiz 5.

- **Section 15.9:** 15, 16, 17, 18, 19 (notice $xy = u$), AP1 from HW3 (if you haven't already done so)

- **Section 16.1:** 5, 6, 8, 11, 15 − 18, 21, 23, 26 (don't sketch)

- **Section 16.2:** 3, 4, 9, 10, 12

Important Note: I will be out of town from Tu 01/28 until Thu 01/30 because of an on-campus interview. Lecture on W 01/29 is cancelled, and instead there is a make-up lecture on M 01/27 from 5 to 5:50 pm in SH 134. There will also be YouTube videos covering the material of the make-up lecture, in case you can't make it, **See next page for the links**. I will also have extra office hours/virtual office hours on that day. Everything else (Monday's lecture, Tuesday/Thursday's discussion, and Friday's lecture) will take place as usual. For your convenience, here is the schedule of this week:

- **M 01/27:** Lecture as usual 10-11 AM/11-12 PM, OH 12-12:30 PM, Make-up Lecture 5-6 PM in SH 134, Virtual OH 6:30 - 7 PM

- **Tu 01/28:** Discussion section as usual

- **W 01/29:** No lecture/OH/Virtual OH

- **Th 01/30:** Discussion section + Quiz as usual

- **F 01/31:** Lecture as usual

Make-up lecture videos: The following videos cover the material that I covered in the make-up lecture:

1. Parametric Equations: **Important** Review of parametric equations

2. Line Integral: **Important** definition and example of a line integral

3. Line Integral Example: In case you want more practice with line integrals

4. Line Integral Derivation: **Important** derivation of formula, fair game for the exams

5. Integral over helix: Line integral in 3 dimensions, if you want more practice