MATH 282 SPRING 2022
HOMEWORK 3
DUE APRIL 20, 2022.

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Required problems:
(Quiz problems drawn from these.)

- Section 15.5: 3, 5.
- Section 15.6: 5, 13, 31, 41, 51.
- Section 15.7: 6, 21, 29.
- Section 15.8: 9, 11, 21, 25, 34, 41.

Suggested challenge problems:
(Conceptually interesting problems in the text to think about. Will not be on a quiz.)

- Section 15.5: 11, 22.
- Section 15.7: 31.
- Section 15.8: 49.

Practice matrix:

If you got help with these...	try these on your own for more practice.
15.5.3, 5	15.5.1–13
15.6.5	15.6.3–8
15.6.13	15.6.9–22
15.6.31	15.6.27–36
15.6.41	39–46
15.6.51	15.6.52
15.7.6	15.7.1–5, 11, 12
15.7.21	15.7.15–28
15.7.29	15.7.30
15.8.9	15.5.1–4, 10
15.8.11	15.5.1–6, 12–13
15.8.21, 25, 34	15.5.22–38
15.8.41	15.5.42, 43

Comments on some of these problems:

15.6. I've probably assigned too few problems in this section; do some more for practice, including some simple ones.

15.6.31. It's almost impossible to do these without sketching a graph of the region first. Try to do that by hand, then check with a computer.

15.7.31. Presumably a big number. Of course, you could solve (b) with elementary school geometry; the power of calculus is that you don't have to assume the shape is so simple or the density is constant...

15.7 / 15.8. I assigned more problems in 15.8 because spherical coordinates are more confusing. But this still might not be enough problems in either section.

15.8.49. This is a precise way to deduce that $dV = \rho^2 \sin(\phi) d\rho\, d\theta\, d\phi$; see the discussion on page 1087. This work isn't really needed, as we'll discuss (in a sketchy way) when we talk about 15.9. It's cute anyway.

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