

A. Due at the start of class on Day 17 (but not collected): Complete these exercises, just to practice basic skills. If you want more practice, then do more problems from the book.

Section 15.2 Exercises 3, 12, 17, 24, 28

B. Due at the start of class on Day 20, as part of your weekly homework packet: Submit polished solutions, including all necessary work and no unnecessary work, in the order assigned.

1. Section 15.2 Exercise 31

2. Let D be the disk $x^2 + y^2 \leq 4$. Use Theorem 4 to prove that $\frac{\pi}{2} \leq \iint_D \frac{1}{4 + x^2 + y^2} dA \leq \pi$.

3. Section 15.2 Exercise 64

4. Study the Mathematica notebook `integrals.nb` on our course web site. Then explain this example, which appears at the end of the notebook. Let $R = [0, 1] \times [0, 1]$. Compute

$$\iint_R \frac{x - y}{(x + y)^3} dA$$

in both orders: $dx dy$ and $dy dx$. Then compute a Riemann sum approximation to the integral. Explain what's happening and how it relates to Fubini's theorem.