

MA 262: Review 4

Name: _____

This review concerns integration over regions in a plane. You may wish to review this concept in a Calculus 2 book or in sections 5.1 - 5.3 of our text. Answer these questions on a separate sheet of paper.

- (1) Let R be the rectangle $[0, 2] \times [1, 4]$ in \mathbb{R}^2 . Let $f(x, y) = x^2 + y^2$. Compute $\iint_R f dA$.
- (2) Let T be the triangle between the x -axis, y -axis, and line $y = -x + 1$. Let $f(x, y) = xy$. Compute $\iint_T f dA$.
- (3) Suppose that R is a rectangle in the plane and that $f: R \rightarrow \mathbb{R}$. What conditions guarantee that $\iint_R f dA$ exists. (Hint: see Theorem 2.5 on page 295).
- (4) Summarize Fubini's theorem.