

Math 210 (Lesieutre)

13.1: Double integrals over rectangular regions

March 3, 2017

Problem 1. Compute the following double integrals. Sketch the region R over which the integral is being taken.

a) $\int_0^1 \int_1^2 xy \, dy \, dx$

b) $\int_1^2 \int_0^1 xy \, dx \, dy$

Problem 2. a) $\int_0^2 \int_0^1 ye^{xy} \, dy \, dx$

b) What is the average value of $f(x, y) = ye^{xy}$ on the region R ?

Problem 3. a) Sketch the region of integration for

$$\int_0^2 \int_0^{x^2} y \, dy \, dx.$$

b) Evaluate the integral.

c) Rewrite the integral with the variables in the opposite order.

d) Evaluate the integral.