Worksheet 5: 8.2, 9.6

Exercise 1 (§9.6 # 1,9) Evaluate each integral

$$\int_0^5 (x^4 y + y)dx \qquad \text{and} \qquad \int_0^3 y e^{4x+y^2} dy$$

Exercise 2 (§9.6, # 23) Evaluate each double integral.

$$\int_1^5 \int_0^3 (x^2 y + 5y)dxdy \qquad \text{and} \qquad \int\int_R \sqrt{x+y}dydx; \quad 1 \leq x \leq 3, 0 \leq y \leq 1$$

Exercise 3 (§9.6, # 39, 45) Evaluate each double integral.

$$\int_2^4 \int_2^{x^2} (x^2 + y^2) dy dx \qquad \text{and} \qquad \int_1^4 \int_1^{e^x} \frac{x}{y} dy dx$$

Execise 4 (§8.2, # 39) The yearly corn production in the US (in billions of bushels) was approximately given by

$$p(t) = 1.757(1.0248)^{t-1930}$$

between 1930 and 2010. Find the average yearly corn production from 1930 to 1950, and the average from 2000 to 2010. Use a calculator to get an answer with 4 significant digits.