

Real Analysis Homework 10, due 2007-11-28 in class

1. (10 points) Given the function

$$f(x, y) = \frac{x^2 - y^2}{(x^2 + y^2)^2}, \quad (x, y) \in I = (0, 1) \times (0, 1)$$

compute the following iterated integrals (hint: use trigonometric substitution) :

$$\int_0^1 \int_0^1 f(x, y) dx dy \quad \text{and} \quad \int_0^1 \int_0^1 f(x, y) dy dx.$$

Is $f(x, y) \in L(I)$ or not? Give your reasons.

2. (10 points) Do Exercise 1 in p. 96.
3. (10 points) Do Exercise 2 in p. 96.
4. (10 points) Do Exercise 3 in p. 96.