PROBLEM SET 8

PROBLEM 1

Find all values of the parameter $a > 0$ for which the function

$$f(x, y) = (x^2 - y^2)(x^2 + y^2)^{-a}$$

is integrable on $[0, 1] \times [0, 1]$.

PROBLEM 2

Find all values of p, $1 \le p \le \infty$, for which the function

$$g(x, y) = \frac{1}{1 - xy}$$

belongs to $L^p([0, 1] \times [0, 1])$.

Exercises 18, 19, 21, 24 from p.p. 93–95

Typeset by $\mathcal{AMS}$-TEX