

Unless otherwise stated all assignments are from Strichartz's book (The Way of Analysis)

Assignment 7

1. Page 138–139, Problems 1, 4, 7, 11, 12, 15.

2. Let f be a non zero function defined and continuous from \mathbb{R} into itself and such that

$$f(x + y) = f(x) + f(y)$$

for all rational numbers x and y . Show that $f(x) = ax$ for all $x \in \mathbb{R}$, and some constant a to be specified. (Hint: What is $f(p/q)$ for p and q are integers with $q \neq 0$?).