

Homework due Mon., Apr.16:

1. P. 289, #1,

2. P. 290, #6

3. Show that if $(V, \|\cdot\|)$ is a Banach space and v_1, v_2, \dots belong to V with $\sum_{i=1}^{\infty} \|v_i\| < \infty$, then there exists a unique $v \in V$ so that

$$\|v - \sum_{i=1}^N v_i\| \rightarrow 0 \text{ as } N \rightarrow \infty.$$

4. Suppose that $f \in H^{-1}(U)$ is represented weakly as $f^0 - \sum_{i=1}^n f_{x_i}^i$ with f^0, f^1, \dots, f^n in L^2 as in Theorem 1(1) on page 283. Give a specific example of an f where there is a second representation $f = g^0 - \sum_{i=1}^n g_{x_i}^i$ with $g^0 \neq f^0$.