

Homework 2, Math 502, Spring 2017

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1: Exercise 17 from Chapter 5 of Folland.

2: Let $(X, \|\cdot\|)$ be a normed vector space, and let V be a proper closed subspace of X . Show that for all $0 < \alpha < 1$, there is an $x \in X$ with $\|x\| = 1$ and $\|x - v\| > \alpha$ for all $v \in V$.

3: Exercise 19 from Chapter 5 of Folland. Use the result of the previous problem instead of the hint in Folland.

4: Exercise 55 from Chapter 5 of Folland.

5: Exercise 63 from Chapter 5 of Folland.

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