HW 3: (due by November 18.)

1. Simon, Problem 5.3.

2. Simon, Problem 5.9.

3. Simon, Problem 6.5.

4. Prove that the map $T$ constructed in the Lax–Milgram proof is an isomorphism once we know that $\lambda ||u|| \leq ||Tu|| \leq \Lambda ||u||$. (Give more details than in the book!)

5. Simon, Problem 7.2.