MA 717
M. Kon

PROBLEM SET 11
Due Thurs. April 12

Lectures 18, 19

Starred problems are optional

1. Reed and Simon, Ch. IV, 41

2*. Reed and Simon, Ch. IV, 42

3. Reed and Simon, II.17

4. Reed and Simon, II.18
Note that the statement of the Theorem is not well-defined in the text, so please refer to class notes for the correct one.

5. Reed and Simon, II.20

6*. Reed and Simon, II.21

7. Uniform, strong, and weak convergence: (a) In the example of section VI.1, show that the operators S_n do not converge to 0 uniformly.
(b) Show that the operators W_n do not converge to 0 strongly.

8. Reed and Simon, problem VI.1. (Note that the three topologies coincide for finite dimensional vector spaces; you need to show that each is weaker than or equal to the previous one).

9*. Reed and Simon, Problem VI.3a (Chapter 6).

10*. Reed and Simon, Problem VI.5 .
(For part (b), this refers to the real line with Gaussian measure $\gamma(E) = \int_E e^{-x^2} d\lambda$, where λ is Lebesgue measure)