1. (10 points)
   
   (a) (7 points) Do Exercise 15 in p. 62.
   
   (b) (3 points) Use Exercise 15 in p. 62 to prove the following: Let \( f : E \to \mathbb{R} \cup \{\pm \infty\} \) be a measurable function where \( |E| < \infty \) and \( |f| < \infty \) a.e. on \( E \). Show that for any \( \varepsilon > 0 \) there exists a constant \( M > 0 \) and a closed set \( F \subset E \) such that \( |E - F| < \varepsilon \) and
   
   \[ |f(x)| \leq M \quad \text{for all} \quad x \in F. \]
   
   This says that a finite function is, up to a set of small measure, a bounded function.

2. (10 points) Do Exercise 16 in p. 63.

3. (10 points) Do Exercise 18 in p. 63.

4. (20 points) Do Exercise 19 in p. 63.