Math 220C: Complex Analysis (UC San Diego, spring 2017)
Problem Set 1 (due Friday, April 14)

1. (a) Let $f : \mathbb{C} \to \mathbb{C}$ be an entire function such that $f(x) = 0$ for all $x \in \mathbb{R}$. Prove that f is identically zero.

   (b) Let $f : \mathbb{C} \to \mathbb{C}$ be an entire function such that $f(x) \in \mathbb{R}$ for all $x \in \mathbb{R}$. Prove that the Taylor series of f has all coefficients in $\mathbb{R}$.

2. Conway IX.1, exercise 2.

3. Conway IX.2, exercise 2.

4. Do Conway, IX.2, exercise 4; then use this to give another proof that the set T in Proposition IX.2.4 is closed.

5. Conway IX.3, exercise 2.

6. Conway IX.3, exercise 3.