

PROBLEM SET 8, 16300 SECTION 21

Due Friday May 22 in class.

1. Exercise 2.1.14 from Sally.
2. Exercise 2.1.18 from Sally. One strategy is as follows:
 - Show that if A and B are countable then $A \times B$ is countable.
 - Use that \mathbb{Z} is countable to conclude that \mathbb{Q} is countable.
 - Show by induction that $V_n =$ degree n polynomials $\subseteq \mathbb{Q}[x]$ is countable.
 - Show that $\mathbb{Q}[x]$ is countable. (Note that this does not follow directly from the previous point.)
3. Exercise 2.1.30 from Sally.
4. Exercise 2.2.2 and 2.2.3 from Sally.
5. Exercise 2.2.12 from Sally.
6. Exercise 2.2.16 from Spivak.