HW #3, due Wednesday, September 16th

Chapter 13: 28, 40, 43, 52
Chapter 14: 2, 3, 8, 10, 17, 24, 25, 34, 51, 54

Extra Problems for HW #3

**Problem 1:** Prove or disprove that if $R$ is a finite ring with $\text{char} R = k$, then $k$ divides $|R|$.

**Problem 2:** Let $R$ be a commutative ring.
(a) Show that the set $N$ of nilpotent elements of $R$ is an ideal.
(b) Show that the only nilpotent element of $R/N$ is $N$. 