Homework 18 : Due Friday, October 30

Problem 1: Chapter 9, #5abce

Problem 2: Chapter 9, #11abcd

Problem 3: Chapter 9, #23

Problem 4: Prove or give a counterexample for each of the following.
a. If G and H are both cyclic, then $G \times H$ is cyclic.
b. If $G \times H$ is cyclic, then G is cyclic and H is cyclic.

Problem 5: Suppose that G is a group and $|G| = pq$ where p and q are (not necessarily distinct) primes. Show that either $Z(G) = \{e\}$ or $Z(G) = G$. *Hint:* A problem from the last assignment is very useful.