HW #2, due January 28th

Chapter 1: 5, 10, 11
Chapter 2: 1, 3, 8, 9, 13-22, 26, 34, 35 37
Chapter 3: 4

Extra Problems for HW #2

Problem 1: Let $H$ and $K$ be subgroups of a group $G$. Determine if the following are subgroups of $G$. If one is not a subgroup, then give a counterexample.

(i) $H \cap K$
(ii) $H \cup K$

Problem 2: Determine which are the following are subgroups of the given group $G$. If it is a subgroup, determine whether or not it is Abelian. Here we let $p$ denote a prime number.

(i) \{ $M \in GL(2, \mathbb{R}) | M^2 = I_2$ \}; $G = GL(2, \mathbb{R})$
(ii) \{ $a/p^k \in \mathbb{Q} | a, k \in \mathbb{Z}, a \neq 0$ \}; $G = (\mathbb{Q}^*, \cdot)$