Do the following problems in the book:

1. p. 120, Exercises 3, 11, 14,
2. p. 133, Exercises 2, 3, 13, 18
3. Find a non-commutative ring $A$ and elements $a, b \in A$ such that $a \cdot b = 0$ but $b \cdot a \neq 0$
4. Assume that $\varphi, \psi : A \to B$ are two homomorphisms that agree on a generating set $C$ of $A$. Prove that $\varphi = \psi$.
5. Let $D = \{a/b \mid a, b \in \mathbb{Z}, b \text{ odd}\}$. Show: $D$ is a commutative domain. What are the invertible elements of $D$? Prove that $D$ has a unique maximal ideal.
6. Let $C[0, 1]$ be the ring of continuous functions on the closed interval $[0, 1]$ and let $x \in [0, 1]$. Prove that $M_x = \{f \mid f(x) = 0\}$ is a maximal ideal of $C[0, 1]$. What can you say about the field $C[0, 1]/M_x$? Is every maximal ideal of $C[0, 1]$ of the form $M_x$ for some $x$?