Math 112 Review for In-class (Easy) Exam 1.5

Our in-class exam will consist of a subset of the following problems. The first problem is from HW 4 (and a link to the solutions for HW 4 is on our Moodle page). The other problems ask for you to memorize definitions. To study for those, look up the definitions in our reading, and practice them until you can write them easily from memory.

1. Suppose $f\colon A \to B$ and $g\colon B \to A$ are functions.
   (a) Show that if $g \circ f = \mathrm{id}_A$, then f is injective.
   (b) Show that if $f \circ g = \mathrm{id}_B$, then f is surjective.
2. What is the definition of a *field*?
3. What does it mean to say a field F is an *ordered field*?
4. What is the *completeness axiom* for an ordered field F.
5. What is **our definition** of $\mathbb{C}$, the *complex numbers*.
6. Let $X \subseteq \mathbb{C}$. What does it mean to say that X is *open*? What does it mean to say X is *closed*?