Information about midterm 2 (April 1, 2019)

There will be 6 problems. These problems require knowledge of the following topics:

- section 2.5;
- syntax of predicate logic, including free and bound occurrences of a variable, the distinction between formulas and sentences, substitution as in $\phi[t/x]$, the notion of a term t being free for a variable x in ϕ;
- semantics: the concept of an L-structure $\mathcal{A}$, the concept $\mathcal{A} \models \phi$, and the concept $\Gamma \models \phi$ (for a set Γ of L-sentences and an L-formula ϕ);
- basic results about predicate logic in terms of semantic equivalences, prenex transformations, and the like;
- examples of L-structures (as in Section 3.7);
- the natural deduction system for predicate logic with equality (the usual rules as in propositional logic, plus the rules about $\forall$, plus the rules about equality). The notion of a derivation, the concept of $\Gamma \vdash \phi$ for a set Γ of L-formulas and an L-formula ϕ. Soundness. Derived rules about $\exists$.

When there is a difference between how the book does it and I did it in class, there is always a good reason for that, and the class version prevails.