

Text Jacobson, *Basic Algebra I and II*

References Lang, *Algebra*
Hungerford, *Algebra*, GTM 73
MacLane, *Categories for the Working Mathematician*
van der Waerden, *Modern Algebra*
Kostrikin and Shafarevitch, *Algebra I*

Week 1 Basics of categories, functors and the category of modules
Jacobson I:7.1-7.2, Jacobson II: 1.1-1.3 , 3.1, 3.7-3.9

1. Jacobson I 7.1.1
2. Jacobson I 7.1.3
3. Jacobson I 7.1.4
4. Jacobson I 7.1.5
5. Jacobson II 3.7.3
6. Jacobson II 3.9.2
7. Show that assigning a group to its center is not a functor from the category of groups to the category of abelian groups.
8. Jacobson II 3.9.13