

**For Monday May 12**

Discussion:

1. Show that  $x^3 - 15x - 126$  (from Example 3.4, page 85) is solvable by radicals by exhibiting an appropriate tower of pure extensions.
2. Do the same for  $x^4 - 10x^2 + 1$  (from Example 3.7, page 87).
3. (After reading 9.3.) Suppose  $k = \mathbb{Q}$ ,  $f(x) = x^2 - 2$ . What is the splitting field  $E$  of  $f(x)$ ? Find all possible automorphisms  $\sigma : E \rightarrow E$  that fix  $\mathbb{Q}$ .

Reading: Read 9.3 and 9.4, and answer reading questions.

Note about the reading: 9.4 contains a lot of new ideas, but most of them are similar to things we have seen before. The main point is to understand the statement of Theorem 9.16. Here is a way to navigate through the material:

1. Make sure to look carefully at the definition of a group and the two examples of groups immediately following the definition.
2. Skim the parts about abstract group theory. (Notice the many parallels to ring theory.)
3. Look more carefully at Theorem 9.11 and the discussion on pages 393-395.

**For Wednesday May 14**

Discussion: 9.4: 5, 8, 10

Reading: Read 9.5, and answer reading questions.

**For Friday May 16**

Written: 9.4: 6