Exercises for Week 11

The work handed in should be entirely your own. You can consult the textbook and/or the class notes but nothing else. To receive full credit, justify your answer in a clear and logical way. Due Nov. 20.

Reading.   Read Sections 7.1, 7.2, 7.3 and Appendix C of the textbook carefully.

1. Section 7.1 Exercise 3(a) (c), 10.

2. Section 7.2 Exercise 1, 2, 3, 4 (b) (d)

3. Compute the number of bases for $\mathbb{F}_3^2$. List all different bases.

4. Show that $\mathbb{Q}[\sqrt{7}] = \{a + b\sqrt{7}|a, b \in \mathbb{Q}\}$ is a field.