Homework is due at the weekly recitation meeting with Qingci, neatly written and stapled. Make sure to write your full name. You may and are encouraged to discuss and collaborate. However, you must write up your homework alone, and submit completely original work. Your solutions will be graded both on correctness and presentation clarity.

**Reading Assignment for week 2**: read the uncovered part of section 1.4, section 1.5 and 1.6 up to example 6

**Problem 1.** Does the subset \( \{a + b\sqrt{2} | a, b \in \mathbb{Q}\} \) of the real numbers form a field? Justify your answer.

- Section 1.2. Exercises 1 4(e)(g), 8, 9, 14, 15
- Section 1.3 Exercises 1 2(b)(g) 3 4 5 6 8(b)(e) 19 23
- Section 1.4 Exercises 1(a)(b)(c)

Always justify your solution. In the “true or false” problems, give a proof if you believe the statement is true, or give a counterexample if you believe the statement is false.