

Math CS-120: Homework 1

Read Chapters 0 and 1 in Stewart and Tall.

Exercises 1: #3, #5, #6, #8, #9, #10, #14, #15

Optional: (a) Prove that the set of matrices of the form

$$\begin{pmatrix} a & b \\ -b & a \end{pmatrix}$$

along with matrix addition and multiplication is isomorphic to the field of complex numbers.

(b) Show that the complex numbers is isomorphic to the field of all polynomials with real coefficients modulo the irreducible polynomial $x^2 + 1$.