Complex Analysis

Exams:
70% Exam
30% Continuous Assessment (Homework)
10% Optional Project (Bonus)

Contents

1 Week 1: Systems of Linear Equations

1.1 Intro to Systems of Linear Equations

We call linear equations because each variable is raised to the first power. Products of variables, squares, square roots, etc., are not linear. A solution to a system of linear equations is an assignment of numerical values to each variables. Systems can have multiple solutions.

1.2 Augmented Matrices and Element row operations

$$\begin{aligned} x + 2y - z &= 5, \\ 3x + y - 2z &= 9, \\ -x + 4y + 2z &= 0 \end{aligned} \quad \Longleftrightarrow \quad \left(\begin{array}{ccc|c} 1 & 2 & -1 & 5 \\ 3 & 1 & -2 & 9 \\ -1 & 4 & 2 & 0 \end{array}\right)$$

To solve system of linear equations, we work with this augmented matrix, applying three types of operations to convert to a simpler form. These operations include:

1. Adding scalar multiple of one row to another
2. Multiplying all entries of a row by same non-zero scalar
3. Swapping two rows.