Class Assignment - 1a

MA2.101: Linear Algebra (Spring 2022)

Deadline: April 4, 2022

Instructions

- All questions are compulsory.
- Upload scanned copies of handwritten solutions on Moodle.

Question 1

Why study linear algebra? Mention your motivations or potential applications, etc.

Question 2

Prove that the set of all complex numbers of the form $x + y\sqrt{2}$, where x and y are rational, is a sub-field of $(\mathbb{C}, +, \cdot)$.

Question 3

Prove that each sub-field of the field of complex numbers contains every rational number.

Question 4

Prove that the inverse operation (function) of an elementary row operation exists, and is an elementary row operation of the same type.