

Chapter 11: Rings

- **Ring:** Algebraic structure closed under addition, subtraction, and multiplication (not division).
- **Subring:** Subset which is closed under addition, subtraction, multiplication and which contains 1.
- **Gauss integers:** The complex numbers of the form $a + bi$ where a and b are integers form a subring of \mathbb{C} that we denote by $\mathbb{Z}[i] = \{a + bi \mid a, b \in \mathbb{Z}\}$.

Problem 2

Show that if M is the closed interval $[a, b]$ and p is not in M , then p is not a limit point of M .

Proof. Since p is not in M , it is not between or equal to a and b , and therefore any interval that contains p is not within M . \square