# 🏛 BRAC University

Department of Mathematics and Natural Sciences

## Total Points: 15

## 📋 Assignment-01

### Course Code: MAT215

Complex

👤 **Name: @Name@**

🪪 **Student ID: @ID@**

👥 **Section: @Section@**

📅 **Semester: FALL 2025**

🕐 **Submission Date:** _____

*Assigned by*

👨‍🏫 **Partho Sutra Dhor**

Lecturer, Department of MNS
BRAC University

## ❓ Question 1

Find all possible values of $z$ such that

$$z^@Q1_n@ = @Q1_z@$$

Locate them in the complex plane. Show that they are contained in a circle and find the radius of that circle. Also find the angular distance between two adjacent roots.

✏️ **Solution:**

## ❓ Question 2

Consider the equation

$$@graph_equation@$$

Describe the above locus in the complex plane.

✏️ **Solution:**

## ❓ Question 3

Consider the inequality

$$@graph_inequality@$$

Describe the above locus in the complex plane.

✏️ **Solution:**

## ❓ Question 3

## ❷ **Question 4**

Solve the following equation for $z$:

$$e^{@Q4_a@z} = @Q4_z@$$

Express $z$ as $x + iy$ where $x, y, \in \mathbb{R}$.

✏ **Solution:**

## ❓ Question 5

Prove that

$$@Q5_expression@$$

✒ **Solution:**

## ❓ Question 6

Solve for $z$:

$$@Q6_expression@$$

✏ **Solution:**

## ❓ **Question 7**

Solve

🖍 **Solution:**

## ❓ Question 8

Solve

✒ **Solution:**

## ❓ Question 9

Solve

✏️ **Solution:**

# ❓ Question 10

@Q10@

🖊 **Solution:**

## ❓ Question 11

@Q11@

✏️ **Solution:**