

Class – XI

Lesson Plan

TOPIC: COMPLEX NUMBER

Brief Description: In this chapter, we will teach students about types of numbers, how imaginary numbers existed, how imaginary numbers are different from real numbers, how to locate complex number on argand plane and how to find imaginary roots of given quadratic equation with the help of quadratic formula

UN Sustainable Goals to be achieved (if any): Quality Education

Objectives: (put Bloom's level)

I - Specific Objectives

Students will be able to understand:

- ❖ Imaginary numbers
- ❖ Concept of complex numbers
- ❖ Algebra of complex numbers
- ❖ The modulus of a complex number
- ❖ The conjugate of a complex number
- ❖ Argand plane and polar representation
- ❖ Quadratic Equations

II - Behavioral Objectives

They will be able to:

Find imaginary roots of given quadratic equations and also, they would be able to locate it on argand plane

Process / Activities:

Activity (to introduce the lesson)

For introducing the chapter (Complex Number), students will be asked to:

1. Find out the solution of

$$x^2 = 1$$

2. To find out the solution of

$$x^2 = -1$$

Activity (to support learning)

Students will be asked to find out argument of any one complex number

Skills (as per subject)

- ❖ Observation
- ❖ Critical thinking
- ❖ Understanding
- ❖ Problem solving

Activity / Assignment (to assess learning)

1. Express the following expression in the standard form of complex numbers:

$$\frac{(3 + i\sqrt{5})(3 - i\sqrt{5})}{(\sqrt{3} + i\sqrt{2}) - (\sqrt{3} - i\sqrt{2})}$$

2. Represent the given complex number in the polar form:

$$z = 1 + i\sqrt{3}$$

Exercise for Notebook (put Bloom's level)

- ❖ Glossary
- ❖ R.T.C (Reference to Context)
- ❖ Typology of questions
- ❖ Value based question

Expected Learning Outcomes

Students would be able to learn:

- ❖ Imaginary numbers
- ❖ Concept of complex numbers
- ❖ Algebra of complex numbers
- ❖ The modulus of a complex number
- ❖ The conjugate of a complex number
- ❖ Argand plane and polar representation
- ❖ Quadratic Equations

Assessment: (put Bloom's level)

Q1. Simplify: (PS)

$$x^2 - 4 = 0$$

Q2. Find the modulus of: (US)

$$a + ib$$

Q3. Represent the given complex number in the polar form: (MS)

$$z = 1 - i\sqrt{3}$$

Q4. Solve: (R)

$$\sqrt{2}x^2 + x + \sqrt{2} = 0$$