

Class – XI

Lesson Plan

TOPIC: LINEAR INEQUALITIES

BRIEF DESCRIPTION - In this chapter, we will teach students about introduction of linear equation, linear inequalities, difference between linear equation and linear inequalities, algebraic solutions of linear inequalities in one variable, graphical representation of linear inequalities in one variable, graphical solution of linear inequalities in two variables and solution of system of linear inequalities in two variables.

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

Objectives: (put Bloom's level)

I - Specific Objectives

Students will be able to understand:

- ❖ Interval notation.
- ❖ Linear inequalities
- ❖ Use properties of inequalities.
- ❖ Algebraic solutions of linear inequalities in one variable
- ❖ Graphical representation of linear inequalities in one variable
- ❖ Graphical solution of linear inequalities in two variables
- ❖ Solution of system of linear inequalities in two variables

II - Behavioral Objectives

Through this chapter students will:

- ❖ Systematic behavior (in plotting the points in graph)
- ❖ One problem can have multiple solutions

Process / Activities:

Activity (to introduce the lesson)

For introducing the chapter (linear inequalities), students will be asked to:

1. Plot various points on the same graph paper and to identify their quadrants/axis. Following points will be provided:
 1. (0, 5)
 2. (-1, 0)
 3. (2, 3)
 4. (6, -1)
 5. (6.5, 0)

6. (0, -3)
7. (-5, -6)
8. (8, -7)

2. Solve simple inequalities and to represent them on the number line:

1. $4x \geq 4$
2. $5y < 10$
3. $-8t > 4$
4. $-9a \leq 45$

Activity (to support learning)

To verify that the graph of a given inequality, like:

$5x + 4y - 40 < 0$, of the form $ax + by + c < 0$, where $a, b > 0, c < 0$ represents only two halves of the plane

Skills (as per subject)

- ❖ Observation
- ❖ Understanding
- ❖ Drawing
- ❖ Imagination
- ❖ Problem solving

Activity / Assignment (to assess learning)

Reshma has Rs 120 and wants to buy some registers and pens. The cost of one register is Rs 40 and that of a pen is Rs 20. In this case, if x denotes the number of registers and y , the number of pens which Reshma buys, then the total amount spent by her?

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:

- ❖ Interval notation.
- ❖ Linear inequalities
- ❖ Use properties of inequalities.
- ❖ Algebraic solutions of linear inequalities in one variable
- ❖ Graphical representation of linear inequalities in one variable
- ❖ Graphical solution of linear inequalities in two variables
- ❖ Solution of system of linear inequalities in two variables

Behavioral Perspective:

After completion of chapter student will achieve following perspectives:

- ❖ Systematic behavior (in plotting the points in graph)
- ❖ One problem can have multiple solutions

Assessment: (put Bloom's level)

Q1. Solve $30x < 200$ when x is a natural number (**Pre-Structural**)

Q2. The marks obtained by a student of Class XI in first and second terminal examination is 62 and 48, respectively. Find the minimum marks he should get in the annual examination to have an average of at least 60 marks. (**Uni-Structural**)

Q3. In an experiment, a solution of hydrochloric acid is to be kept between 30° and 35° Celsius. What is the range of temperature in degree Fahrenheit if conversion formula is given by $C = (5 / 9) (F - 32)$, where C and F represent temperature in degree Celsius and degree Fahrenheit, respectively. (**Relational**)

Q4. IQ of a person is given by the formula $IQ = (MA/CA) \times 100$, where MA is mental age and CA is chronological age. If $80 \leq IQ \leq 140$ for a group of 12 years old children, find the range of their mental age. (**AEL**)

SOLO Taxonomy –

- ❖ **Pre-structural** – Students are known with the concept of linear equation and pair of linear equations in two variables
- ❖ **Uni-structural** – Students are known with the concept of solving pair of linear equations in two variables, especially graphical method
- ❖ **Multi-structural** – Students can use graphical method, substitution method, elimination method and cross-multiplication method to solve given questions and verify their answers
- ❖ **Relational** – Students will be able to relate these concepts wherever they need to solve linear equation in one/two variables
- ❖ **Extended Abstract** – Students will be able to analyze and relate the topic with real life situations like in production/manufacturing unit, in scoring marks etc.