

Class – XI
Lesson Plan

Topic: Sequence and Series

Brief Description of the lesson:

The students will be able to revise of topics related to algebra learnt in previous classes, importance and use of algebra and then concept of sequence and series, arithmetic progression, geometric progression and application of AP and GP.

Objectives:

Specific Objectives:

Students will be able to:

S1 understand the concept of sequence and series, meaning of arithmetic progression and nth term of an AP and GP (**Understanding/Classifying**)

S2 create and identify a sequence by given general term (**Synthesis**) (**Analysis**)

S3 find general term and last term of given AP and GP (**Apply/Implementation**)

S4 find sum to 'n' terms of given AP and GP (**Apply/Implementation**)

S5 understand concepts and formulae related to arithmetic mean and geometric mean.
(**Understanding/Classifying**)

II - Behavioral Objectives:

After completion of chapter, students would be able to attain following behavioural objectives:

1) B1 Identify and differentiate between AP and GP (**Analyze/Differentiate**)

2) B2 Real life problems solving based on AP and GP (**Apply/Implementation**)

Process / Activities:

ACT1 Students will be asked to solve real-world problems involving APs: A student wants to save money for a new phone. He wants to save Rs.10 on the first day, Rs.12 on the second day, Rs.14 on the third day, and so on. How much money will he saved after 30 days? (**Apply/Implementation**)

ACT2 Students can be asked to solve real-world problems involving GPs: A single bacterium is placed in a petri dish and allowed to grow. The bacterium divides every hour, and the number of bacteria doubles each time it divides. How many bacteria will be in the petri dish after 24 hours?

(**Apply/Implementation**)

Skills:

(i) Problem solving

(ii) Calculation

(iii) Critical thinking

Assessment:

Assessment of activity will be done on the basis of following questions

A1 A construction worker is building a staircase. He wants the staircase to have 10 steps, and he wants each step to be 1 inch taller than the previous step. How tall will the tenth step be? (**Analyze/Differentiate**)

(**Apply/Implementation**)

A2 A radioactive isotope has a half-life of 10 years. If there is initially 1 gram of the isotope, how much of the isotope will remain after 50 years? (**Analyze/Differentiate**) (**Apply/Implementation**)

Expected Learning Outcomes:

Students would be able to:

- 1) differentiate between sequence and series (**Analyze/Differentiate**)
- 2) to define and identify an AP(and GP) as a sequence in which the difference(ratio) between any two consecutive terms is constant. (**Understand/Classifying**)
- 3) find and obtain a sequence(AP/GP) by given information. (**Synthesis**) (**Apply/Implementation**)
- 4) find general term and sum to 'n' terms of given AP(GP) (**Apply/Implementation**)
- 5) to apply APs and GPs to solve real-world problems. (**Apply/Implementation**)

Topic/Start Date/Assessment					
Knowledge	Understanding	Application	Analysis	Synthesis	Evaluation
	S1	S3	S2	S2	
	S5	S4	B1		
		B2	A1		
		ACT1	A2		
		ACT2			
		A1			
		A2			

REVIEW OF THE LESSON PLAN
(To be done when the lesson gets over)

Problems Faced:

1. The basic of the topic is dealt in detail in class X. The level of the topic is different for classes X and XI. It becomes more challenging in class XI. But students were attempting/learning this topic casually which made them confused later and students committed unforced errors during tests.
2. Students faced difficulty solving word problems because of insufficient practice at home.
3. Few students were unable to distinguish between whether they have to apply nth term formula or sum of first n terms formula.
4. A few students faced difficulty, in calculations while solving questions based on geometric progressions.

Success: about 95% of the students understand the topic better and have ability to express it properly.

Failure: about 05% of students were not be able to get to the final answer or were found with incorrect initiation of the question.

Real Learning Outcomes: Students were able to

1. explain what arithmetic and geometric progressions are, and how they are different from other types of mathematical sequences.
2. to use the formulas for arithmetic and geometric progressions to solve a variety of problems, such as finding the nth term of a sequence, finding the sum of a finite series, and finding the sum of an infinite series.
3. distinguish between arithmetic and geometric progressions, and to identify the correct formula to use when solving a problem.
4. translate word problems involving arithmetic and geometric progressions into mathematical equations, and then solve those equations using the appropriate formulas.

Student's response/participation: Students participations was good. Some students were disengaged for a while because they were struggling in word problems. Almost all students enjoyed exploring the exponential growth patterns that they produce the many ways in which they can be used to model natural phenomena.

Teacher's learning: Teacher's may learn

1. new ways to visualize arithmetic and geometric progressions. Also may get to some new real life phenomena happening around through student's doubt clearing.
2. different methods for solving arithmetic and geometric progression problems
3. common errors that students make when solving arithmetic and geometric progression problems