

Chapter 5 Class 10 - Arithmetic Progressions - Case Based Question Worksheet 2 by *teachoo*

Chapter: [Chapter 5 Class 10 Maths - Arithmetic Progressions](#)

Name: _____

School: _____

Roll Number: _____

Case Study 1: Environmental Project



A school initiates a project to reduce its electricity consumption. In the first month, they save 200 units of electricity. They set a goal to increase their savings by an additional 40 units each month compared to the previous month.

1. The monthly savings form an AP. How many units of electricity will they save in the 12th month?
2. What is the total amount of electricity saved in one year (12 months)?
3. In which month will their monthly savings first exceed 500 units?
4. The cost of one unit of electricity is ₹ 8 . What is the total monetary value of their savings in the first 6 months?
5. If the goal was to save a total of 10,000 units, in which month would they achieve this cumulative target?

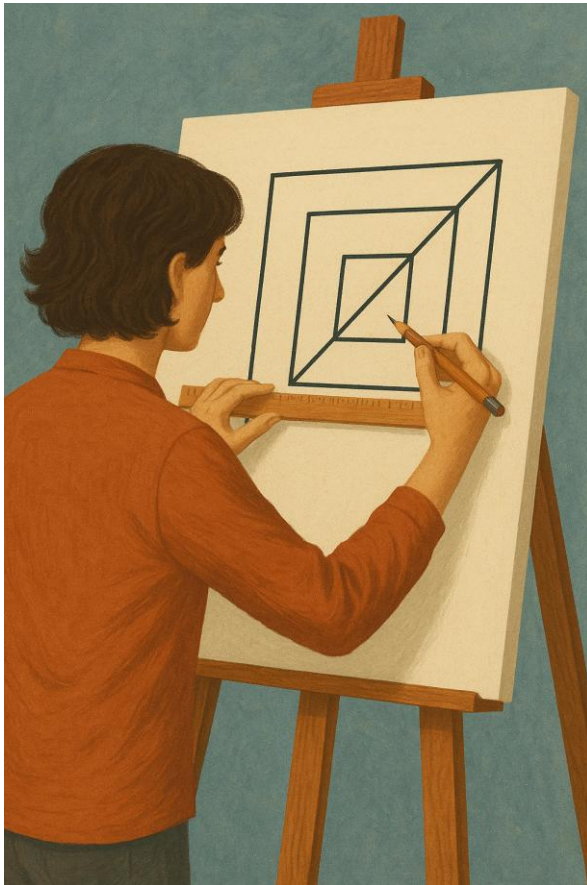
Case Study 2: Fitness App Challenge



A fitness app launches a 16-day walking challenge. On Day 1, the user must walk 1000 steps. On the last day (Day 16), the user must walk 4000 steps. The daily step count increases by a fixed amount each day, forming an AP.

1. What is the fixed daily increase in the number of steps (the common difference)?
2. How many steps must the user walk on Day 10 ?
3. What is the total number of steps the user will walk over the entire 16 -day challenge?
4. On which day will the user's daily step count be the arithmetic mean of the step counts of Day 1 and Day 16 ?
5. The app awards a "Gold Badge" if the total steps exceed 35,000 . It awards a "Platinum Badge" if the total exceeds 45,000 . Which badge will the user receive?

Case Study 3: Geometric Art



An artist is creating a piece of art using straight line segments. The shortest segment is 4 cm long. Each subsequent segment is 2 cm longer than the previous one. She uses a total of 25 segments.

1. The lengths of the segments form an AP. What is the length of the longest segment she uses?
2. What is the arithmetic mean of the length of the shortest and the longest segment?
3. What is the length of the 13th segment?
4. What is the total length of all the segments combined?
5. If the artist decides to color the segments that are longer than 40 cm in red, how many segments will be colored red?

Important links

- Answer of this worksheet - <https://www.teachoo.com/25627/5379/Case-Based-Questions---Worksheet-2/category/Teachoo-Questions---Case-Based/>
- Full Chapter with Explanation, Activity, Worksheets and more – <https://www.teachoo.com/subjects/cbse-maths/class-10th/ch5-10th-arithmetic-progressions/>
- Science Class 10– <https://www.teachoo.com/subjects/science/class-10/>
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