

CLASS 9

MATHEMATICS

EXTRA QUESTIONS

Class 9 Mathematics Chapter 8 Predicting What Comes Next?: Exploring Sequences and Progressions – Extra Questions with Answers

Extra practice questions for Class 9 Maths Chapter 8 (Predicting What Comes Next?: Exploring Sequences and Progressions), beyond the textbook. These Class 9 Mathematics Chapter 8 important questions are handy for last-minute exam practice.

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Extra practice questions for Class 9 Maths Chapter 8 (Predicting What Comes Next?: Exploring Sequences and Progressions), beyond the textbook. These Class 9 Mathematics Chapter 8 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Find the common difference of the AP: 5, 9, 13, 17, ...

Ans: $d = 9 - 5 = 4$.

Q2. Write the formula for the n th term of an AP.

Ans: $a_n = a + (n-1)d$.

Q3. Is the sequence 2, 4, 8, 16 an AP? Why or why not?

Ans: No, the differences (2, 4, 8) are not constant, so it is not an AP (it's a geometric progression instead).

Q4. Find the 5th term of the AP with first term 3 and common difference 2.

Ans: $a_5 = 3 + (5-1)(2) = 3 + 8 = 11$.

Q5. What is another name for the terms of a sequence that follow a specific rule?

Ans: Terms of the sequence.

Short Answer Questions (2–3 marks)

Q6. Find the sum of the first 10 terms of the AP: 2, 5, 8, 11, ...

Ans: $a=2, d=3, n=10$. $S_{10} = 10/2 \times [2(2) + (10-1)(3)] = 5 \times [4 + 27] = 5 \times 31 = 155$.

Q7. The 3rd term of an AP is 12, and the 7th term is 24. Find the first term and common difference.

Ans: $a + 2d = 12$ and $a + 6d = 24$. Subtracting: $4d = 12$, so $d = 3$. Substituting back: $a + 2(3) = 12$, so $a = 6$.

Q8. A stack of logs has 20 logs in the bottom row, 19 in the next row, and so on, decreasing by 1 each row, up to a single log at the top. Find the total number of rows and the total number of logs, recognising this as an AP.

Ans: This is an AP with $a=20, d=-1$, going down to $a_n=1$. Using $a_n=a+(n-1)d$: $1 = 20 + (n-1)(-1)$, so $(n-1) = 19$, giving $n = 20$ rows. Total logs: $S_{20} = 20/2 \times (20+1) = 10 \times 21 = 210$ logs.

Higher-Order Thinking / Application Questions

Q9. A person starts saving ₹500 in the first month and increases their savings by ₹100 every subsequent month. Using the AP formulas, find how much they save in the 12th month, and their total savings over the first 12 months.

Ans: $a=500, d=100$. 12th month savings: $a_{12} = 500 + (12-1)(100) = 500 + 1100 = ₹1600$. Total over 12 months: $S_{12} = 12/2 \times [2(500) + (12-1)(100)] = 6 \times [1000 + 1100] = 6 \times 2100 = ₹12600$.

Q10. Prove, using algebra, that if three numbers a, b, c are in arithmetic progression, then $2b = a + c$.

Ans: If a, b, c are in AP, the common difference between consecutive terms is equal: $b - a = c - b$ (since both equal the common difference d). Rearranging: $b + b = a + c$, so $2b = a + c$. This confirms that the middle term of three numbers in AP is the average of the other two.

Class 9 Mathematics Chapter 8 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 9 Mathematics Chapter 8 Solutions](#) and [Class 9 Mathematics Chapter 8 Revision Notes](#).

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