



CLASS 9 MATHEMATICS



CHAPTER 8 – PREDICTING WHAT COMES NEXT: EXPLORING SEQUENCES AND PROGRESSIONS



MCQ WORKSHEET | Ganita Manjari | 2026–27

Name: _____

Class: IX Section: _____

Date: _____



Instructions

- Choose the **one correct answer**.
 - Attempt all questions.
 - **Total: 45 MCQs**
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PART A – SEQUENCES & PATTERNS

1. A sequence is:

- A. An unordered collection of numbers
- B. An ordered list of numbers or objects
- C. A collection containing only natural numbers
- D. A collection containing only positive numbers

2. Each number in a sequence is called a:

- A. Factor
- B. Term
- C. Multiple
- D. Variable

3. Which of the following is a sequence?

- A. 2, 4, 6, 8, ...
- B. $2 + 4 + 6 + 8$
- C. $2 \times 4 \times 6$
- D. $2/4/6$

4. What is the next term in the sequence?

3, 6, 9, 12, ...

- A. 14
- B. 15
- C. 16
- D. 18

5. What is the next term?

20, 17, 14, 11, ...

- A. 10
- B. 9
- C. 8
- D. 7

6. The sequence 5, 10, 15, 20, ... has:

- A. Common difference 2
- B. Common difference 3
- C. Common difference 5
- D. Common ratio 5

7. Which sequence has a constant difference?

- A. 2, 4, 8, 16
- B. 3, 6, 9, 12
- C. 1, 2, 4, 8
- D. 2, 6, 18, 54

8. Which of the following is not an arithmetic sequence?

- A. 4, 8, 12, 16
- B. 10, 7, 4, 1

- C. 2, 5, 8, 11
 - D. 3, 6, 12, 24
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PART B – EXPLICIT & RECURSIVE RULES

9. An explicit rule gives:

- A. A term directly in terms of its position
- B. Only the first term
- C. Only the previous term
- D. The common difference only

10. A recursive rule defines:

- A. Every term without using previous terms
- B. A term using one or more previous terms
- C. Only the last term
- D. Only the first term

11. If:

$$t_n = 2n + 1$$

then the first term is:

- A. 1
- B. 2
- C. 3
- D. 4

12. If:

$$t_n = 3n - 2$$

then t_5 is:

- A. 11
- B. 12

- C. 13
- D. 15

13. If:

$$t_n = 5n + 2$$

then t_{10} is:

- A. 50
- B. 52
- C. 55
- D. 60

14. Which is a recursive rule for the sequence:

$$4, 7, 10, 13, \dots?$$

- A. $t_n = 3n+1$
- B. $t_1 = 4, t_{(n+1)}=t_n+3$
- C. $t_{(n+1)}=t_n \times 3$
- D. $t_1=3, t_{(n+1)}=t_n+4$

15. If:

$$t_1 = 5$$

and

$$t_{(n+1)} = t_n + 4$$

then t_4 is:

- A. 13
- B. 15
- C. 17
- D. 19

PART C – ARITHMETIC PROGRESSIONS

16. An arithmetic progression (AP) is a sequence in which:

- A. Consecutive terms have the same ratio
- B. Consecutive terms have the same difference
- C. All terms are equal
- D. Terms are always positive

17. In an AP, the common difference is usually denoted by:

- A. a
- B. d
- C. r
- D. n

18. The general form of an AP is:

- A. $a, ar, ar^2, \dots$
- B. $a, a+d, a+2d, \dots$
- C. $a, a^2, a^3, \dots$
- D. $a, 2a, 3a, \dots$

19. The n th term of an AP is:

- A. $a + nd$
- B. $a + (n-1)d$
- C. $a(n-1)d$
- D. ad^n

20. Find the common difference of:

$7, 12, 17, 22, \dots$

- A. 3
- B. 4
- C. 5
- D. 6

21. The 10th term of:

$3, 8, 13, 18, \dots$

is:

- A. 43
- B. 48
- C. 53
- D. 58

22. The 20th term of:

5, 9, 13, 17, ...

is:

- A. 77
- B. 81
- C. 85
- D. 89

23. Which term of the AP:

4, 9, 14, 19, ...

is 49?

- A. 8th
- B. 9th
- C. 10th
- D. 11th

24. The common difference of:

25, 20, 15, 10, ...

is:

- A. 5
- B. -5
- C. 10
- D. -10

PART D – SUMS OF SEQUENCES

25. The sum:

$$1 + 2 + 3 + \dots + n$$

is:

- A. n^2
- B. $n(n-1)/2$
- C. $n(n+1)/2$
- D. $2n$

26. The sum of the first 10 natural numbers is:

- A. 45
- B. 50
- C. 55
- D. 60

27. The sum of:

$$1 + 2 + 3 + \dots + 20$$

is:

- A. 200
- B. 210
- C. 220
- D. 230

28. The sum of the first 15 natural numbers is:

- A. 105
- B. 110
- C. 115
- D. 120

29. The sum of the first n odd natural numbers is:

- A. n
 - B. $2n$
 - C. n^2
 - D. $n(n+1)$
-

PART E – GEOMETRIC PROGRESSIONS

30. A geometric progression (GP) is a sequence in which consecutive terms have the same:

- A. Difference
- B. Sum
- C. Ratio
- D. Product

31. The common ratio of:

2, 6, 18, 54, ...

is:

- A. 2
- B. 3
- C. 4
- D. 6

32. The general form of a GP is:

- A. $a, a+d, a+2d, \dots$
- B. $a, ar, ar^2, \dots$
- C. $a, 2a, 3a, \dots$
- D. $a, a^2, a^3, \dots$

33. The n th term of a GP is:

- A. $a+(n-1)d$
- B. $ar^{(n-1)}$
- C. $a+n r$
- D. a/r^n

34. The 5th term of:

3, 6, 12, 24, ...

is:

- A. 36
- B. 48
- C. 60
- D. 96

35. The 6th term of:

2, 6, 18, 54, ...

is:

- A. 162
- B. 324
- C. 486
- D. 729

36. Which of the following is a GP?

- A. 2, 4, 6, 8
 - B. 3, 6, 9, 12
 - C. 2, 6, 18, 54
 - D. 5, 10, 15, 20
-

PART F – VIRAHĀNKA–FIBONACCI & APPLICATIONS

37. The Virahānka–Fibonacci sequence begins:

- A. 1, 2, 4, 8, ...
- B. 1, 2, 3, 5, 8, ...
- C. 2, 4, 6, 8, ...
- D. 1, 3, 6, 10, ...

38. In the Virahānka–Fibonacci sequence, each term after the first two is obtained by:

- A. Multiplying the previous term by 2
- B. Adding the previous two terms

- C. Subtracting the previous term
- D. Squaring the previous term

39. The next term after:

1, 2, 3, 5, 8, 13

is:

- A. 18
- B. 20
- C. 21
- D. 26

40. The next two terms of:

1, 2, 3, 5, 8, ...

are:

- A. 11, 14
- B. 13, 18
- C. 13, 21
- D. 15, 20

41. A ball is dropped from a height of 100 cm and rebounds to 60% of its previous height. The height after the first bounce is:

- A. 40 cm
- B. 50 cm
- C. 60 cm
- D. 80 cm

42. In the bouncing-ball situation above, the heights form a:

- A. Constant sequence
- B. AP
- C. GP
- D. Fibonacci sequence

 PART G – HIGHER-ORDER MCQs

43. If the n th term of a sequence is:

$$t_n = 4n - 1$$

then the 25th term is:

- A. 96
- B. 99
- C. 100
- D. 101

44. Which number is not a term of the AP:

5, 8, 11, 14, ...?

- A. 20
- B. 26
- C. 35
- D. 37

45. If the first term of a GP is 4 and the common ratio is 3, its 4th term is:

- A. 36
- B. 54
- C. 108
- D. 324

ANSWER KEY

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	10	B	19	B	28	D	37	B
2	B	11	C	20	C	29	C	38	B
3	A	12	C	21	B	30	C	39	C
4	B	13	B	22	B	31	B	40	C
5	C	14	B	23	C	32	B	41	C
6	C	15	C	24	B	33	B	42	C

7	B	16	B	25	C	34	B	43	B
8	D	17	B	26	C	35	C	44	D
9	A	18	B	27	B	36	C	45	C



CHAPTER 8 QUICK REVISION



Sequence

An **ordered list** of numbers or objects.



Explicit Rule

Gives a term directly according to its position.

Example:

$$t_n = 3n + 2$$



Recursive Rule

Defines a term using previous term(s).

Example:

$$t_1 = 2$$

$$t_{(n+1)} = t_n + 3$$



Arithmetic Progression (AP)

Common difference is constant.

$$a, a+d, a+2d, \dots$$



nth term:

$$t_n = a + (n-1)d$$

Geometric Progression (GP)

Common ratio is constant.

$a, ar, ar^2, \dots$

★ **nth term:**

$$t_n = ar^{(n-1)}$$

Sum of First n Natural Numbers

$$1 + 2 + 3 + \dots + n = n(n+1)/2$$

Triangular Numbers

$1, 3, 6, 10, 15, \dots$

$$T_n = n(n+1)/2$$

Square Numbers

$1, 4, 9, 16, 25, \dots$

$$n^2$$

Virahānka–Fibonacci Sequence

$1, 2, 3, 5, 8, 13, 21, \dots$

Each term after the first two is the **sum of the previous two terms**.

Real-Life GP

Bouncing-ball heights and repeated percentage growth/decay can form geometric progressions.



SCORE

40–45: 🌟 Sequence & Progression Master!

34–39: 🏆 Excellent!

27–33: 👍 Very Good!

20–26: 📖 Revise Chapter 8!

Below 20: 💪 Practise more sequences and progressions!