CHAPTER-1 | Patterns in Mathematics

QUIZ-01

1. Which number sequence is formed by repeatedly adding 2 to each previous number starting from 1?

   A. All 1's B. Counting numbers
   C. Even numbers D. Odd numbers (D)

Explanation : The odd numbers sequence is formed by adding 2 to the previous odd number: 1, 3, 5, 7, ...

2. What is the sum of the first four odd numbers: 1 + 3 + 5 + 7?

   A. 14 B. 16
   C. 18 D. 20 (B)

Explanation : The sum is 1 + 3 + 5 + 7 = 16, which is also a square number.

3. Which of the following is both a triangular number and a square number?

   A. 16 B. 21
   C. 36 D. 25 (C)

Explanation : 36 is the only number listed that is both a square (6 × 6) and a triangular number.

4. Which number sequence is formed by multiplying each previous number by 2?

   A. Powers of 2 B. Powers of 3
   C. Virahānka numbers D. Even numbers (A)

Explanation : Powers of 2 grow by multiplying the previous term by 2: 1, 2, 4, 8, 16, ...

5. What are hexagonal numbers?

   A. 1, 4, 9, 16... B. 1, 3, 6, 10...
   C. 1, 7, 19, 37... D. 2, 4, 6, 8... (C)

Explanation : Hexagonal numbers follow the pattern: 1, 7, 19, 37, ...

6. Which shape pattern shows increasing number of equal sides and angles?

   A. Complete Graphs B. Koch Snowflake
   C. Regular Polygons D. Stacked Triangles (C)

Explanation : Regular polygons like triangle, square, pentagon, etc., have equal sides and angles.

7. Which number sequence results from adding counting numbers in increasing and then decreasing order?

   A. Triangular numbers B. Square numbers
   C. Powers of 2 D. Odd numbers (B)

Explanation : 1 + 2 + 3 + 2 + 1 = 9 (3^2), such sequences give square numbers.

8. What is the number sequence of sides in regular polygons starting from triangle?

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

Explanation : The sides increase from triangle (3) to decagon (10): 3, 4, 5, ...

9. What sequence results from multiplying triangular numbers by 6 and adding 1?

   A. Square numbers B. Powers of 3
   C. A new pattern D. Even numbers (C)

Explanation : The result is a distinct pattern, not a standard sequence like squares or powers.

10. Which visual pattern replaces each line segment with a "speed bump" repeatedly?

    A. Stacked Squares B. Stacked Triangles
    C. Koch Snowflake D. Complete Graphs (C)

Explanation : Koch Snowflake is generated by replacing each straight segment with a zigzag pattern.