

CHAPTER-1 | Patterns in Mathematics

QUIZ
PART-09

1. When you start adding counting numbers, you get which sequence?
A. Square numbers
B. Triangular numbers
C. Fibonacci sequence
D. Powers of 2 (B)

Explanation: Adding counting numbers ($1 + 2 + 3 + 4 \dots$) results in triangular numbers. Each number represents the sum of the first few natural numbers.

2. What happens when you add up pairs of consecutive triangular numbers?
A. You get square numbers
B. You get cube numbers
C. You get even numbers
D. You get odd numbers (A)

Explanation: Adding consecutive triangular numbers gives you square numbers. For example, $1 + 3 = 4$, $3 + 6 = 9$, and so on.

3. What sequence do you get when you start adding powers of 2 starting with 1 (i.e., $1, 1 + 2, 1 + 2 + 4, \dots$)?
A. Triangular numbers
B. Fibonacci sequence
C. Powers of 2
D. Powers of 3 (C)

Explanation: The sequence generated by adding powers of 2 ($1, 1 + 2, 1 + 2 + 4 \dots$) results in a series of increasing numbers based on powers of 2.

4. When you add 1 to each sum of powers of 2, you get:
A. Triangular numbers
B. Square numbers
C. Even numbers
D. Odd numbers (B)

Explanation: Adding 1 to the sum of powers of 2 results in square numbers, such as 2, 5, 11, and so on.

5. The sum of the first 5 triangular numbers ($1 + 3 + 6 + 10 + 15$) is:
A. 36
B. 45
C. 55
D. 60 (B)

Explanation: The sum of the first 5 triangular numbers is 45 ($1 + 3 + 6 + 10 + 15$).

6. What is the relationship between adding up powers of 2 and getting square numbers?
A. Adding powers of 2 gives Fibonacci numbers
B. Adding powers of 2 gives square numbers
C. Adding powers of 2 gives odd numbers
D. Adding powers of 2 gives cube numbers (B)

Explanation: When you add up powers of 2 starting with 1 and add 1 to the sum, the result is square numbers.

7. The sum of the first 100 odd numbers is:
A. 100
B. 200
C. 5050
D. 10000 (C)

Explanation: The sum of the first 100 odd numbers is 5050, and it is also a perfect square (100^2).

8. What sequence do you get by adding consecutive odd numbers starting with 1?
A. Triangular numbers
B. Square numbers
C. Powers of 3
D. Fibonacci sequence (B)

Explanation: Adding consecutive odd numbers starting with 1 results in square numbers. For example, $1 + 3 = 4$, $1 + 3 + 5 = 9$, and so on.

9. In the sequence of powers of 3, the numbers are:
A. 1, 2, 3, 4
B. 1, 3, 9, 27, 81
C. 1, 2, 4, 8, 16
D. 1, 2, 4, 6, 8 (B)

Explanation: The sequence 1, 3, 9, 27, 81 represents powers of 3. Each number is 3 raised to a successive power.

10. The sum of the first 10 natural numbers is:
A. 45
B. 55
C. 65
D. 60 (B)

Explanation: The sum of the first 10 natural numbers ($1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10$) is 55.