

CHAPTER-1 | Patterns in Mathematics

QUIZ PART-11

1. The study of patterns in shapes is part of which branch of mathematics?
A. Algebra
B. Geometry
C. Trigonometry
D. Calculus (B)

Explanation : Geometry is the branch of mathematics that focuses on shapes, sizes, and patterns.

2. What kind of shapes are studied under shape sequences?
A. Random shapes
B. Regular polygons
C. Irregular polygons
D. Shapes with no pattern (B)

Explanation : Shape sequences mainly focus on regular polygons where each shape in the sequence shares equal sides and angles.

3. What does the sequence of regular polygons start with?
A. Triangle
B. Square
C. Pentagon
D. Octagon (A)

Explanation : The sequence of regular polygons starts with a triangle, followed by quadrilaterals, pentagons, and so on.

4. The sequence 1, 4, 9, 16, 25 represents which type of number?
A. Square numbers
B. Triangular numbers
C. Cube numbers
D. Fibonacci numbers (A)

Explanation : The sequence 1, 4, 9, 16, 25 represents square numbers, as each number is the square of a natural number.

5. The sequence of stacked squares involves:
A. Increasing square sizes arranged in rows
B. Increasing circle sizes
C. Triangular arrangements of squares
D. Decreasing square sizes (A)

Explanation : The stacked squares involve arranging increasing square sizes in rows, each having more squares than the previous one.

6. What is the next number in the sequence of hexagonal numbers: 1, 7, 19, 37, 61?
A. 85
B. 79
C. 72
D. 99 (B)

Explanation : The next number in the sequence of hexagonal numbers is 79, continuing the pattern.

7. Which of the following is NOT an example of a regular polygon?
A. Triangle
B. Square
C. Rectangle
D. Hexagon (C)

Explanation : A rectangle is not a regular polygon because its sides are not all equal in length.

8. The Koch snowflake pattern involves:
A. Adding smaller squares to each side of a triangle
B. Repeating a triangle pattern infinitely
C. Adding smaller triangles to a large triangle
D. Repeating hexagonal patterns (C)

Explanation : The Koch snowflake involves adding smaller triangles to the sides of a large triangle, resulting in a fractal shape.

9. What is the sequence formed by stacking equilateral triangles?
A. Triangular numbers
B. Stacked square numbers
C. Hexagonal numbers
D. Fibonacci sequence (A)

Explanation : The sequence formed by stacking equilateral triangles results in triangular numbers.

10. Can shape patterns be related to number patterns?
A. Yes, always
B. No, never
C. Sometimes
D. Only in geometry (A)

Explanation : Yes, shape patterns can be related to number patterns, as numbers often represent the number of dots in shapes like squares or triangles, forming sequences.