

CHAPTER-4 | Exploring Some Geometric Themes

QUIZ PART-02

1. Which geometric shape is repeatedly used to create the Sierpinski Gasket?

- A. Square
- B. Circle
- C. Equilateral Triangle
- D. Rectangle (C)

Explanation : The Sierpinski Gasket is formed by repeatedly dividing and removing parts of an equilateral triangle.

2. The starting shape for the Sierpinski Gasket is an:

- A. Equilateral triangle
- B. Rectangle
- C. Circle
- D. Square (A)

Explanation: The Sierpinski Gasket begins with an equilateral triangle.

3. An equilateral triangle is divided into how many identical equilateral triangles?

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

Explanation: Joining the midpoints divides it into 4 identical equilateral triangles.

4. The Sierpinski Gasket is formed by repeatedly removing the:

- A. Corner triangle
- B. Middle triangle
- C. Whole triangle
- D. Base line (B)

Explanation: At each step, the central triangle is removed to form a hole.

5. Joining the midpoints of an equilateral triangle creates:

- A. 4 identical equilateral triangles
- B. 4 rectangles
- C. 3 circles
- D. 2 squares (A)

Explanation : The midpoint construction divides the triangle into four equal equilateral triangles.

6. In Step 1 of the Sierpinski Triangle, the number of triangles remaining is:

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

Explanation : Out of 4 small triangles, the middle one is removed, so 3 remain.

7. In Step 2 of the Sierpinski Triangle, the number of triangles remaining is:

- A. 6
- B. 9
- C. 12
- D. 16 (B)

Explanation : Each of the 3 remaining triangles again leaves 3 smaller triangles, so $3 \times 3 = 9$.

8. The holes in the Sierpinski Gasket are shaped like:

- A. Circles
- B. Squares
- C. Triangles
- D. Rectangles (C)

Explanation : Holes are formed by removing triangular regions.

9. If the starting triangle has area 1 sq. unit, the area remaining after Step 1 is:

- A. $\frac{1}{4}$
- B. $\frac{1}{2}$
- C. $\frac{3}{4}$
- D. 1 (C)

Explanation : One of four equal triangles is removed, so $\frac{3}{4}$ of the area remains.

10. The Sierpinski Gasket is an example of a:

- A. Fractal
- B. Prism
- C. Cube
- D. Cylinder (A)

Explanation : It is a fractal because the same triangular pattern repeats at smaller scales.