Fractal Review
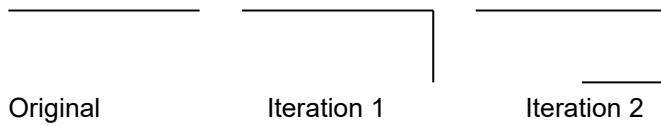
1. In the fractal below the length of the original segment is 64 cm and each new segment is ½ the previous segment

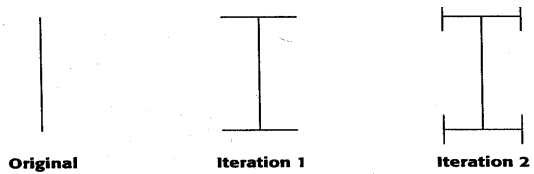Original   Iteration 1   Iteration 2

a) What is the length of the shortest segment in Iteration 5?

b) What is the total length of the fractal in Iteration 5?

2. In the fractal below the original segment has length 128 units and each new segment is ½ that of the previous segment.

Original   Iteration 1   Iteration 2

a) What is the length of the shortest segment in Iteration 5?

b) What is the total length of the fractal in Iteration 5?

3. In the fractal below,

Original   Iteration 1   Iteration 2

a) How many of the shortest segments are there in iteration 4?

b) What is the total length of the 4rd iteration if the original has length 16 and each successive segment is ½ the length of the previous segment?

4. For the fractal shown below the original triangle has an area of 768. Each successive shaded triangle has an area of ¼ that of the previous triangle.

Original   Iteration 1   Iteration 2
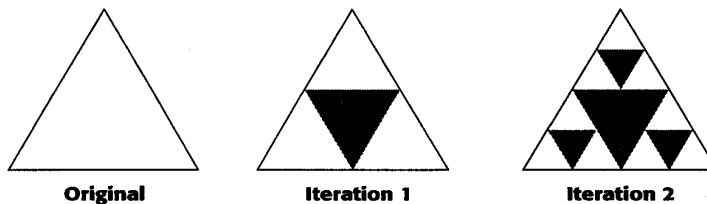
a) How many of the smallest shaded triangles are there in the 4th iteration?

b) What is the area of the shaded portion of the 4th iteration?

c) What is the area of the white portion of the 4th iteration?

5. In the fractal below which shows a section of the snowflake curve, the original has length 324, and each new segment has a length 1/3 that of the previous segment.

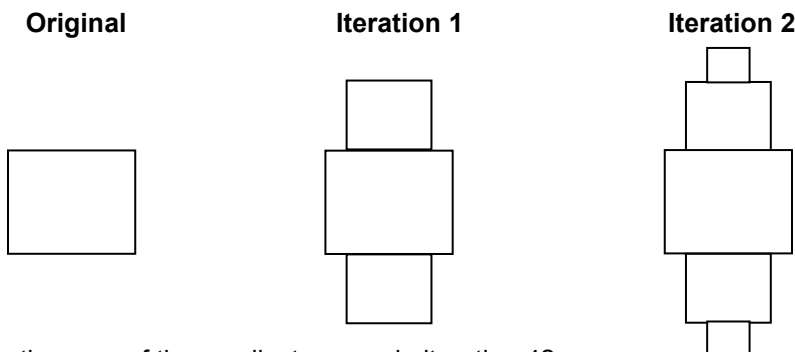Original   Iteration 1   Iteration 2

a) How many segments does the 4th iteration have?

b) What is the length of the 4rd iteration?

6. The side of the original square in the fractal below has length 200. Each successive square has side length 1/2 the length of the parent square. What is the **area** of the 4th iteration.

Original   Iteration 1   Iteration 2
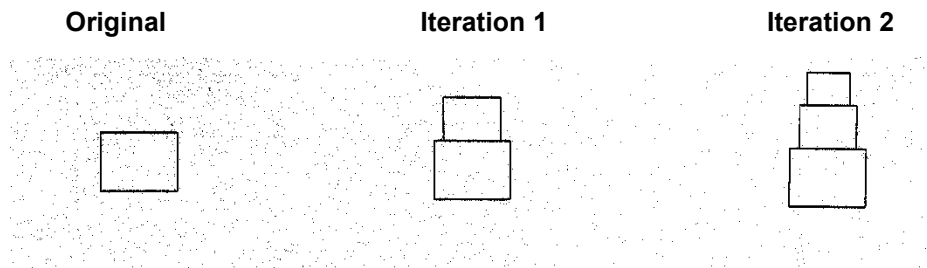
7. In the fractal shown below the side of the original square is 64. Each successive square has side length ¾ that of the previous square.

Original   Iteration 1   Iteration 2

a) What is the **area** of the smallest square in iteration 4?

b) What is the **total area** of the fractal in iteration 4?

8. The area of the original white square in the fractal below is 4096. Each successive white square has an area of ¼ that of the previous square.

Original   Iteration 1   Iteration 2
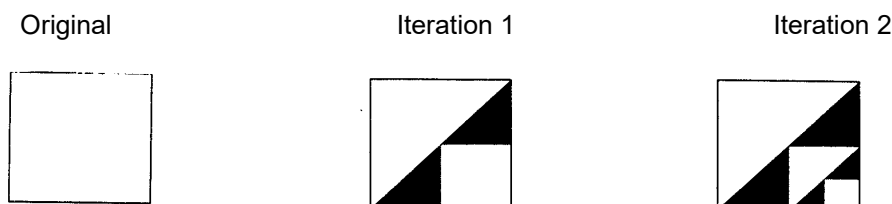
a) Find the area of the shaded portion of the third iteration

b) Find the area of the white portion of the 3rd iteration

Answers: 1. a) 2cm b) 126cm   2. a) 4 units b) 376 units   3. a) 16 b) 80
              4. a) 27 b) 525   c) 243   5. a) 256   b) 1024
              6. 53281.25   7. a) 410.06   c) 13574.125   8. a) 1344 b) 2752