Instructions 1

Download Homework3.pdf from the Course Materials website. Submit your answers below

Question 2

Suppose the initial (level 0) line segment in the Koch curve is 3 centimeters. What is the length in centimeters of the Koch curve at le

- 16/3
- 16/27
- 。 64/27
- 64/9
- 27/3

Question 3

Consider a variation on the Koch curve. Start with a line segment of length L. The iteration rule is illustrated in Homework 3.pdf (pledownload from Course Materials page), where each segment is replaced by five segments, each of length 1/3 the original segment. V length of this curve at level 2?

- 。 (25/9) L
- (10/6) L
- 。 (9/5) L
- 。 (16/9) L
- ∘ (10/9) L

Question 4

What is the length of the fractal in question 2 at level N ?

- 。 (4/3)^NL
- ∘ (5/3)^N L
- ∘ (6/3)^N L
- 。 (5 N / 3) L
- ∘ (3/5)^NL

Question 5

What is the fractal (Hausdorff) dimension of the fractal in question 2?

- ∘ log 4/log 3
- ∘ log 3/log 4
- ∘ log 5/log 3
- ∘ log 5/log 4
- log (4 / 3)

Question 6

Consider the Cantor Set, a fractal that is formed by starting with a line segment of length L, and at each level, the middle third of tha segment is erased (and not replaced by anything!). A picture of this process is in Homework3.pdf. What is the length of the Cantor se sum of the length of the segments) at level N?

- ∘ (1/3)^N L
- [3/2]^NL
- 。 [4/3]^NL
- ∘ (2/5)^NL
- ∘ (2/3)^N L

Question 7

What is the fractal (Hausdorff) dimension of the Cantor set?

- log 3 / log 2
- ∘ log 2/log 3
- ∘ log 2/log 4
- log (2/3)
- log (3/2)