## 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 (ple download from Course Materials page), where each segment is replaced by five segments, each of length $1 / 3$ the original segment. \} length of this curve at level 2?

- $(25 / 9) \mathrm{L}$
- $(10 / 6) \mathrm{L}$
- (9/5) L
- $(16 / 9)$ L
- (10/9) L


## Question 4

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

- $(4 / 3)^{N} L$
- $(5 / 3)^{N} L$
- $(6 / 3)^{N} L$
- ( $5 \mathrm{~N} / 3$ ) L
- $(3 / 5)^{N} L$


## 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 $N$ ?

- $(1 / 3)^{N} L$
- $(3 / 2)^{N} L$
- $(4 / 3)^{N} L$
- $(2 / 5)^{N} L$
- $(2 / 3)^{N} L$


## Question 7

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

- $\log 3 / \log 2$
- $\log 2 / \log 3$
- $\log 2 / \log 4$
- $\log (2 / 3)$
- $\log (3 / 2)$

