Fractals homework 1:

1. Consider this fractal that is very similar to the Sierpinski triangle:

|  |  |  |
| --- | --- | --- |
| Iteration 0 | Iteration 1 | Iteration 2 |
|  |  |  |

a. Sketch iteration 3:

b. Find a formula for the total length of the segments in the nth iteration. Use it to show that the total length of the segments in the complete (infinite iteration) fractal is infinite.

c. Find a formula for the area in the nth iteration. Use it to show that the area of the complete (infinite iteration) fractal is 0.

2. Consider this fractal:

|  |  |  |  |
| --- | --- | --- | --- |
| Iteration 0 | Iteration 1 | Iteration 2 | Iteration 3 |
|  |  |  |  |

a. Draw iteration 4:

b. Find a formula for the total length of the segments in the nth iteration. Use it to show that the total length of the segments in the complete (infinite iteration) fractal is infinite.