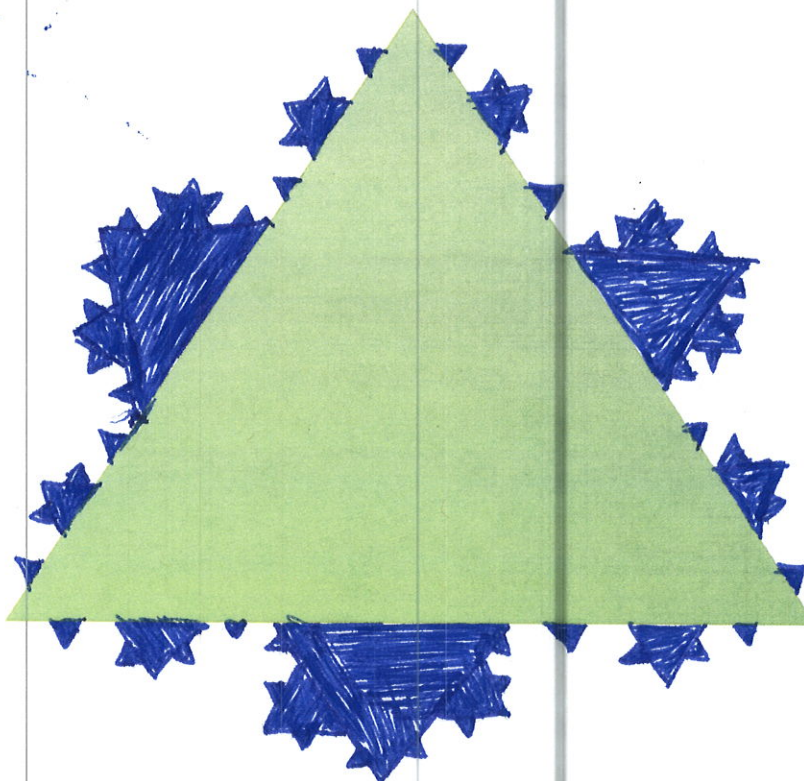
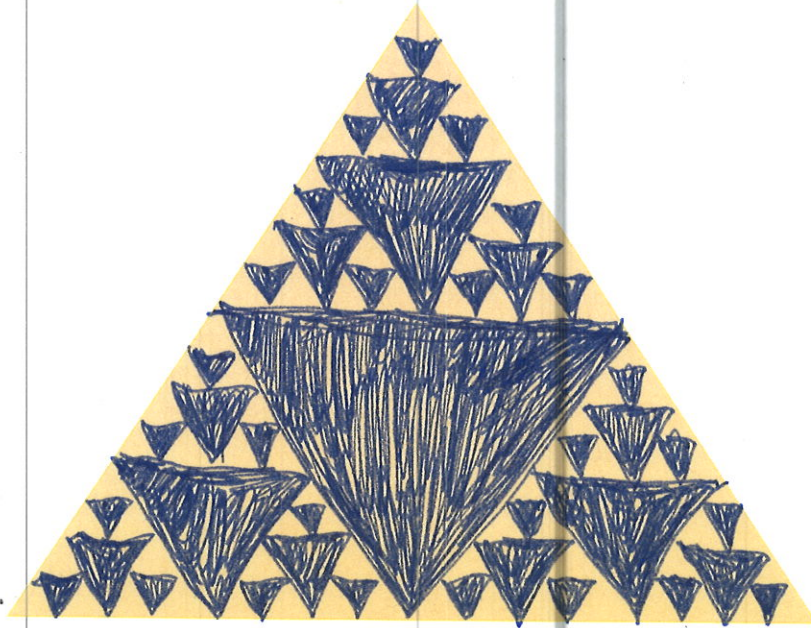


**Instructions:** Answer the following questions on separate numbered page(s) and attach work to this page. Indicate for each problem on this sheet which page the answer to the question can be found, and indicate the answers clearly in your work (you can circle the answer, for instance).

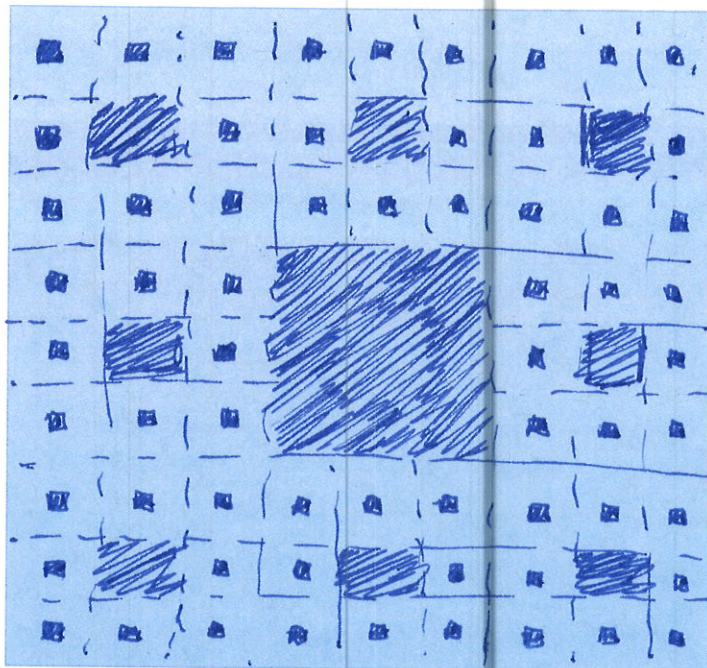
1. Use the image of the equilateral triangle below to construct the first three stages of the Koch Snowflake.



2. Define the term **self-similarity**, in your own words.
3. Construct your own fractal similar to the Koch snowflake. Begin with a shape (say, a pentagon) and clearly state your replacement rule. Then follow that rule for four steps. Attach your drawing. For the area and perimeter, which is finite and which is infinite, if we carried on the steps indefinitely?
4. Construct Sierpinski's Gasket for 4 steps using the triangle below.



5. Construct Sierpinski's Carpet using the square below.



6. Play the Chaos Game at <http://www.shodor.org/interactivate/activities/TheChaosGame/> and print the results (or attach a screenshot in Canvas). Experiment with different vertices and different probabilities. What do you notice?
7. What happens to the area in a Sierpinski gasket/carpet? What happens to the length of the boundary?