Geometric Series Problems   Name:
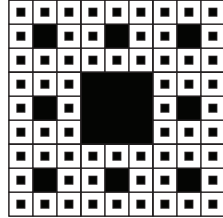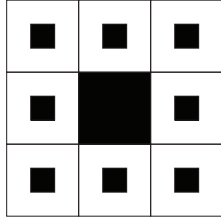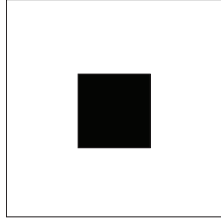
| Show all relevant work! |

1. A Sierpinski carpet is formed by cutting a square into ninths and knocking out the center square,
   then repeating the process infinitely.
   If the original carpet has an area of 1 unit, what is the limiting value of the area of this sequence of carpets?

2. The area of a circle inscribed in an equilateral triangle (of side 1) is removed. Then the areas of the circles tangent
   to the largest circle and the triangle are removed. Then the areas inscribed between the second largest circles and
   the triangle are removed. This process is continued ad infinitum. Find the area of the remaining figure.
   What percentage of the original triangle is this?