1. Find the following sums.

   (a) $\displaystyle\sum_{i=0}^{10}(-1)^i$

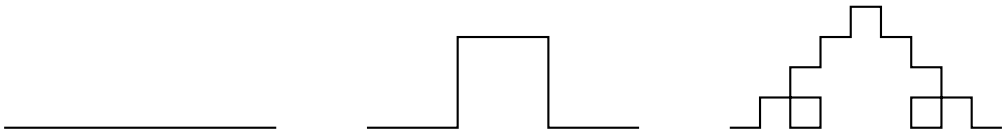
   (b) $\displaystyle\sum_{k=1}^{8}\left(\frac{1}{2}\right)^k$

   (c) $1-3+9-27+81-\cdots-3^7$

   (d) $\displaystyle\sum_{n=1}^{\infty}\left(\frac{2}{3}\right)^n$

   (e) $\dfrac{3}{4}-\dfrac{3}{16}+\dfrac{3}{64}-\dfrac{3}{256}+\cdots$

2. Consider the following recursive scheme. Assuming you begin with a segment of length 1, find the length of the curve after 5 iterations.



3. Consider the following recursive scheme. Assuming you begin with a segment of length 1, find the length of the curve after 4 iterations. (Image courtesy of Wikipedia's *L-system* page.)