4. In the first year, the area is 1 square meter. In the second year, the plant grows by $4 \cdot (1/3)^2$. Find a formula for g_n, the amount that the plant grows in the n-th year. (Note that g_n is defined only for $n \geq 2$.)

$g_n =$ _____

5. In the first year, the plant occupies a total of one square meter. In the second year, the plant occupies a total of $1 + 4(1/9)$ square meters. Find a formula for the total area A_n, that the plant occupies in the n-th year.

$A_n =$ _____

To simplify your answer, note that you can write your expression in the following form: $1 + a\left(1 + x + x^2 + \ldots + x^n\right)$. Apply the formula

$$1 + x + x^2 + \ldots + x^n = \frac{1 - x^{n+1}}{1 - x},$$

which is valid provided $x \neq 1$, to your previous expression to get an answer that is much more simplified.

6. Fill in the following table. Use your calculator to give a decimal approximation (correct to 3 decimal places) of the values for A_n.

n	A_n
1	
2	
3	
4	
5	
10	

From the values in the table, take a guess as to the area as n approaches ∞: _____

Is there are correlation between your answer you just gave and the picture of the square plant that you drew?