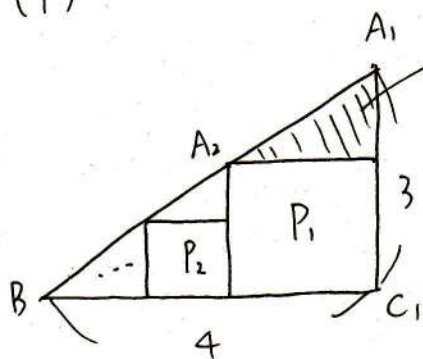


(1)



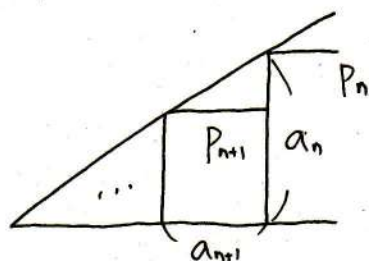
この三角形の辺の比より  
正方形  $P_1$  の1辺の長さを  $a_1$  とおくと

$$4 : 3 = a_1 : (3 - a_1)$$

$$a_1 = \frac{12}{7}$$

$$\therefore S_1 = a_1^2 = \frac{144}{49}$$

(2)



$P_n$  の1辺の長さを  $a_n$ .

$P_{n+1}$  "  $a_{n+1}$  とおくと

$$4 : 3 = a_{n+1} : (a_n - a_{n+1})$$

$$a_{n+1} = \frac{4}{7} a_n$$

(1) の結果から  $a_n = \frac{12}{7} \cdot \left(\frac{4}{7}\right)^{n-1} = 3 \left(\frac{4}{7}\right)^n$

したがって  $S_n = a_n^2 = 9 \left(\frac{16}{49}\right)^n$

$$(3) \sum_{n=1}^{\infty} S_n = \frac{9 \cdot \frac{16}{49}}{1 - \frac{16}{49}} = \frac{\frac{9 \cdot 16}{49}}{\frac{33}{49}} = \frac{9 \cdot 16}{33} = \frac{48}{11}$$