Subject 16   **GEOMETRY**
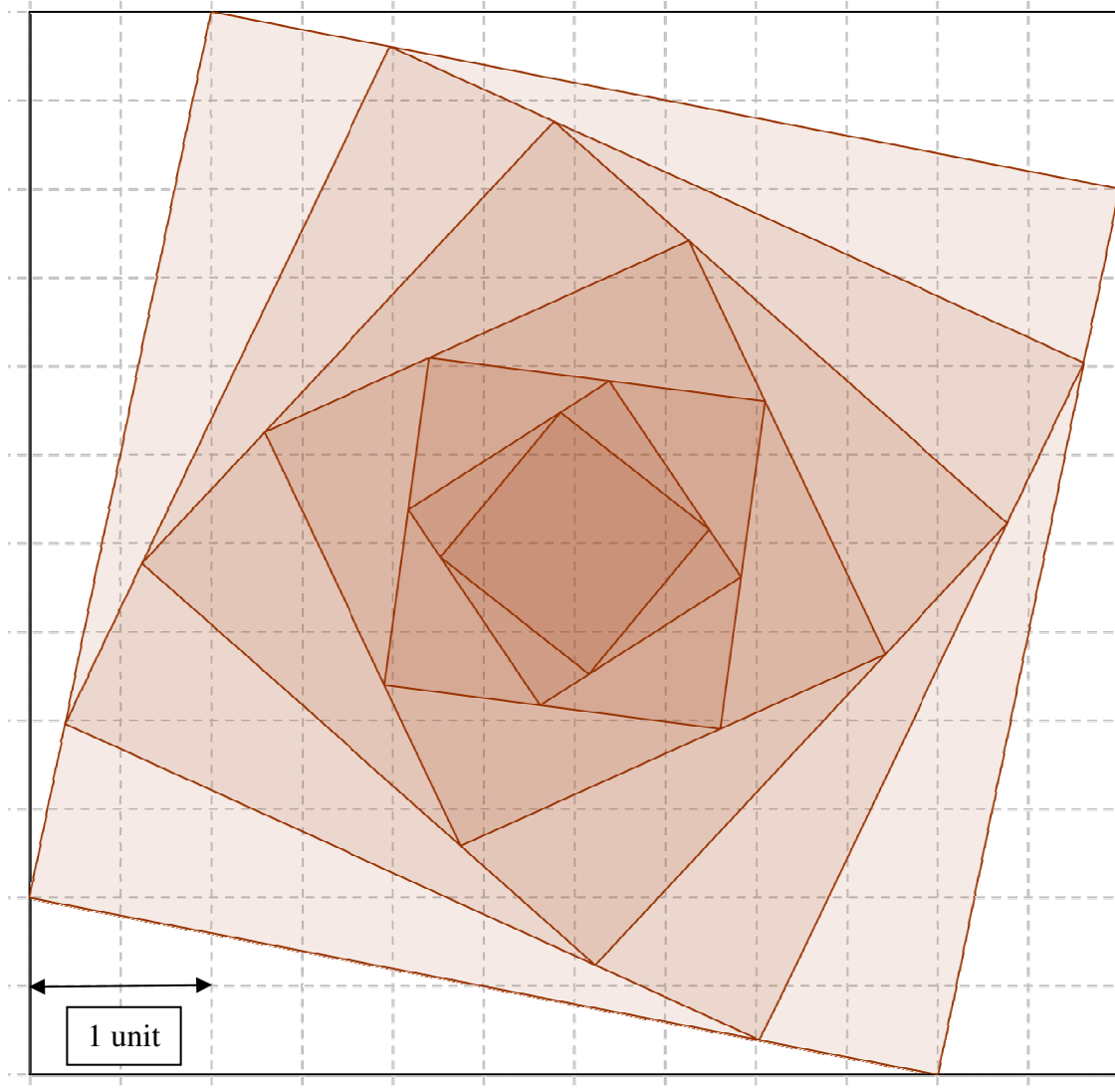
Please do not write on this exam paper and give it back at the end of the test

Starting from a square S_0 of edge 6 units, we construct the squares S_1, S_2, S_3, ..., S_n, ... : the vertices of the square S_{n+1} are constructed on the edges of the previous square S_n , at 1 unit from its vertices. We call a_n the length of the edge of the square S_n.

1°) Calculate a_1 and a_2.

2°) Find out the formula of a_{n+1} in terms of a_n , (for all integer n).

3°) Prove that the sequence (a_n) is minorated by 1.

4°) Prove that the sequence (a_n) is decreasing.

5°) What can you say about the convergence of this sequence?