Let G be a tree with $\Delta \leq 4$.
Question: can G be a unit square graph? Let's call T_k the tree of depth k such that every vertex of G is of degree 4 except the leaves.
T_0 and T_1 are clearly unit square graphs. However, for $k \geq 2$, it is less obvious.

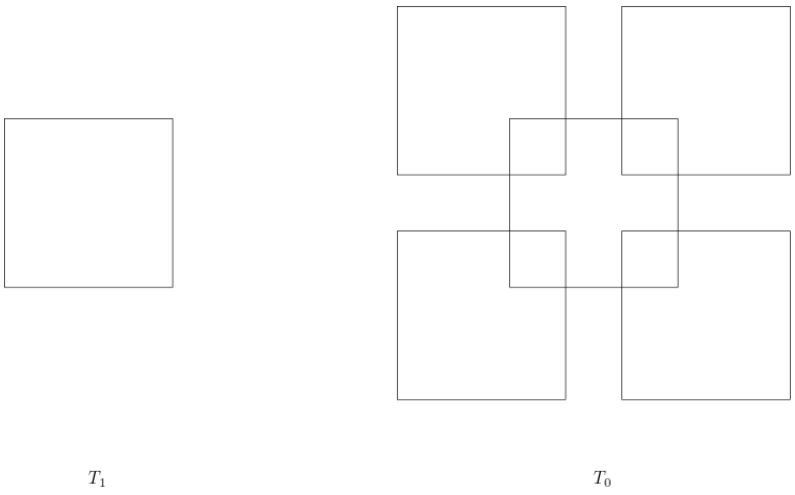

Figure 1: T_0 and T_1 are clearly unit square.

Let's observe that: $|T_k| = \sum_{i=0}^{k} 4^i$ meaning the number of vertices increase very fast. However, the maximum euclidean distance between the root vertex and any other vertex of the graph linearly depends on k. For instance, with $k = 5$, $|T_k| = 1365$; but a leaf is at most at distance 5 from the root. Therefore, we ca