

# Locating Chromatic Number of Infinite Trees

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The locating chromatic number of a graph is the smallest integer  $n$  such that there is a proper  $n$ -coloring  $c$  and every vertex has unique vector of distances to colors in  $c$ . We explore necessary condition and give sufficient conditions for an infinite tree to have finite locating chromatic number. We also give an algorithm for computing the locating coloring of trees that works for both finite and infinite trees.