A quasigroup is a structure equipped with nonassociative binary operations of multiplication, left division, and right division. Rooted binary trees with $n$ leaves represent the number of ways to bracket a word with $n$ arguments involving a single nonassociative binary operation. While Catalan numbers count rooted binary trees with $n$ leaves, we are interested in the super-Catalan numbers that count the quasigroup words with $n$ arguments. We will also discuss the relationship between super-Catalan numbers and the quasigroup of integer-valued functions on the vertex set of an infinite tree of valency four. (Received September 15, 2016)