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In this paper, we are using a graph-theoretic definition, rather than a homological or algebraic definition, for the number of ends of the right or the left Cayley digraph of a finitely presented semigroup or monoid. For monoids and semigroups left Cayley (di)graphs can be very different from right Cayley (di)graphs. Most of our work has been concerned with the number of ends of the right or the left Cayley (di)graph of a finitely presented semigroup or monoid. We can exhibit a finitely generated monoid for which a left (di)graph has  $m$  ends and right (di)graph has  $n$  or infinitely many ends. Several results of the paper include the lemma that the number of ends doesn't depend upon the finite set of generators used, the result that for any inverse semigroup, the number of right ends is the same as the number of left ends, and the lemmas about certain semidirect products and direct products of finitely generated infinite monoids having only one end. (Received July 12, 2005)