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Let R be a Noetherian ring and let I be an ideal. Recall that J is a reduction of I if $J \subset I$ and $I^{n+1} = JI^n$ for some nonnegative integer n . Northcott and Rees proved that if R is a Noetherian local ring with infinite residue field then there are infinitely many reductions of I . We focus on the class of square-free monomial ideals that are generated in degree 2. These correspond to edge ideals of graphs. We investigate various properties of reductions of such ideals and prove a formula for the core of a special subclass. (Received January 18, 2011)