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Karen L Collins* (kcollins@wesleyan.edu), Dept. of Math and CS, Exley Science Tower, Middletown, CT 06459-0128. *The Distinguishing Chromatic Number and Wreath Products*. Preliminary report.

The distinguishing number of a graph (Albertson and Collins, 1996) is the smallest integer k such that the graph has a vertex labelling with k colors such that every non-trivial automorphism of the graph changes the labelling. Although the distinguishing number is not a hereditary property, as the chromatic number is, Tucker has recently shown that 3-connected planar graphs can always be distinguished with 4 or fewer colors. We will discuss several bounds on the distinguishing number in terms of the size of the automorphism group of the graph and construct a class of vertex transitive graphs, using the wreath product, that always have large distinguishing number. (Received December 26, 2006)