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We introduce a new method to bound  $p$ -torsion in class groups, combining analytic ideas and reflection principles from algebraic number theory. The method gives, in particular, new bounds for the 3-torsion part of class groups in quadratic, cubic and quartic number fields, as well as bounds for arbitrary  $p$  for certain families of higher degree fields. (For instance, one can bound the 5-torsion in class groups of quadratic extensions of  $\mathbb{Q}(\sqrt{5})$ .) A key ingredient is the fact that use of "Arakelov class groups" throughout allows one to generalize existing arguments on quadratic imaginary fields to arbitrary number fields. Conditionally on GRH, we obtain a nontrivial bound for the size of the  $p$ -torsion subgroup in the class group of a general number field. (Received September 12, 2006)