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We discuss homotopy invariants of one-dimensional and planar spaces. Since the late 90's there has been significant interest in this area. This work is related to that of Cannon, Conner, Eda, Kawamura, Zastrow and others. These topologically defined invariants can be determined algebraically. In particular, for some very wild spaces (not locally simply connected), the fundamental group is sufficient to determine the homotopy type of the space. For example, the Hawaiian Earring, the Sierpinski curve, and the Menger curve can all be differentiated by their fundamental groups. (Received September 16, 2008)