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A noncommutative space-time is defined by replacing space-time coordinates by generators of a noncommutative algebra satisfying certain commutation relations. This in effect blurs the notion of a point, and therefore, noncommutative spaces are often considered in quantum field theory and string theory. Recently, physicists have studied nonlinear differential equations in these spaces. In particular, we will discuss some PDE aspects of noncommutative nonlinear wave equations. For a space with the noncommutativity in only the spatial directions, there are previously known results that are qualitatively different than those for the classical wave equation. For example, there are global existence results for all power nonlinearities (where the ordinary pointwise product is replaced by a standard nonlocal product), and the speed of propagation of the waves is infinite. We will also discuss some progress in the existence theory for spaces with noncommutativity in the time as well as the spatial directions. (Received February 07, 2006)