1047-16-98 Victor Reiner (reiner@umn.edu), School of Mathematics, University of Minnesota, Minneapolis, MN 55455, and Dumitru I. Stamate* (dumitru.stamate@imar.ro), Institute of Mathematics "Simion Stoilow", of the Romanian Academy, P.O. BOX 1-764, 014700 Bucharest, Romania. Koszul incidence algebras, affine semigroups, and Stanley-Reisner ideals.

We prove a theorem unifying three results from combinatorial homological and commutative algebra, characterizing the Koszul property for incidence algebras of posets and affine semigroup rings, and characterizing linear resolutions of squarefree monomial ideals.

The characterization in the graded setting is via the Cohen-Macaulay property of certain posets or simplicial complexes, and in the more general nongraded setting, via the sequential Cohen-Macaulay property. (Received January 21, 2009)