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In commutative algebra, Castelnuovo and Mumford introduced long ago a notion of ‘regularity’ for ideals of polynomials. In combinatorics one uses the word ‘regularity’ for graphs in which all vertices have the same degree. A priori these two integers are unrelated even if they happen to be called the same. It turns out that sometimes they do coincide. If A is an arithmetically-Gorenstein arrangements of lines in which all singularities are planar, and R is the Castelnuovo-Mumford regularity of the coordinate ring of A , we show that the dual graph of A is R -regular; or in other words, each line meets exactly R other lines of the arrangement. (Received July 18, 2016)