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A Problem Concerning Divisibility Sequences

The best known example of a linear divisibility sequence is the Lucas sequence, which is of considerable importance in computational number theory. One particular instance of this sequence is the well-known Fibonacci sequence. One way to generalize the Lucas sequence is to consider linear divisibility sequences which have a characteristic polynomial of even degree 2k, and distinct zeros with the property that k pairs of these zeros have the same integral product. The case where k is 1 is, of course, the Lucas sequence. In this talk I will discuss the case where k is 2. This deceptively simple sounding investigation results in some rather difficult problems.