T. Richard Carson Periodic recurrence relations and continued fractions, Fibonacci Quart. **45** (2007), no. 4, 357–361.

Abstract

The Fibonacci series represents the simplest series whose successive members obey a periodic 3-term relation, wherein the coefficients and the period are all equal to 1. Here the most general case where these parameters are all arbitrary is treated. For a series of quantities or elements, related by a periodic 3-term recurrence relation between adjacent elements, it is shown that there is also a 3-term invariant recurrence relation between corresponding elements within adjacent periods. Application to the numerators and denominators of the convergents of a periodic continued fraction follows naturally.