

CHARACTERISTIC PROPERTIES OF FIBONACCI AND FIBONACCI LIKE SEQUENCES

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Abstract

Among sequences of integers, the most famous, interesting and remarkable sequence is the Fibonacci sequence $\{f_n\}$. There are many properties of this sequence. Some of these can be used to define $\{f_n\}$. Such properties are known as characteristic properties of $\{f_n\}$. Further, this concept of characterization is also considered for Fibonacci like sequences, $\{g_n\}$, satisfying

$$g_{n+2} = g_{n+1} + g_n, \quad n \geq 0, \quad g_0 = a, \quad g_1 = b,$$

where a and b are known real or complex numbers. Examples are given to show that every property of $\{f_n\}$ or $\{g_n\}$ can not be taken as its characteristic property.

1. Introduction

There are various types of properties enjoyed by Fibonacci and Fibonacci like sequences (FLS). During the last eight decades, many authors have discussed and studied different aspects of these sequences [1 to 9]. In this paper, we introduce a different concept known as "characterization of $\{f_n\}$ and FLS". There are several properties of $\{f_n\}$ and FLS. But each property of $\{f_n\}$ or FLS can not be used to define it. In other words each