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Abstract

A conditional recurrence sequence $\{q_n\}$ is one in which the recurrence satisfied by q_n depends on the residue of n modulo some integer $r \geq 2$. If a conditional sequence $\{q_n\}$ is a (strong) divisibility sequence then we define it as a *conditional (strong) divisibility sequence*. In this paper, we find some families of the conditional (strong) divisibility sequences for $r = 2$. These sequences are a generalization of the best known (strong) divisibility sequences in the literature, such as the Fibonacci sequence, the Lucas sequence, the Lehmer sequence, etc. Also, they contain some new fourth-order linear divisibility sequences which are different from the ones in the literature. An open problem is to determine the conditional (strong) divisibility sequences for $r > 2$.