Four-ordered and Hamiltonian properties of the generalized Petersen graph GP\((n, 4)\)

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A graph \(G\) is \(k\)-ordered if, for any sequence of \(k\) distinct vertices of \(G\) there exists a cycle containing these \(k\) vertices in order. It is \(k\)-ordered Hamiltonian if the condition that the cycle is Hamiltonian is added. Moreover, a graph is \(k\)-ordered Hamiltonian connected if for any sequence of \(k\) distinct vertices of the graph there exists a Hamiltonian path beginning at the first vertex, ending at the last vertex, and containing all \(k\) vertices in order. We study the Hamiltonian connectedness and various 4-ordered properties of the generalized Petersen graph GP\((n, 4)\).

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