Grinberg's Criterion on Non-Planar Graphs

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Abstract

Robertson (1968) and independently, Bondy (1972) proved that the generalized Petersen graph $P(n, 2)$ is non-hamiltonian if $n \equiv 5 \pmod 6$ while Thomason (1982) proved that it has precisely three hamiltonian cycles if $n \equiv 3 \pmod 6$. Here we give a unified proof (which is easier) of these results using Grinberg's theorem.