

Christopher J. Hillar and Troels Windfeldt  
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**Abstract**

We generalize both the Fibonacci and Lucas numbers to the context of graph colorings, and prove some identities involving these numbers. As a corollary we obtain new proofs of some known identities involving Fibonacci numbers such as

$$F_{r+s+t} = F_{r+1}F_{s+1}F_{t+1} + F_rF_sF_t - F_{r-1}F_{s-1}F_{t-1}.$$