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Fibonacci and Lucas Numbers which have Exactly Three Prime Factors and Some Unique Properties of F_{18} and L_{18},
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Abstract

Let F_n and L_n be the nth Fibonacci and Lucas numbers, respectively. Let $\omega(n)$ be the number of prime factors of n, $d(n)$ the number of positive divisors of n, $A(n)$ the least positive reduced residue system modulo n, and $\ell(n)$ the length of the longest arithmetic progressions contained in $A(n)$. On the occasion of attending the 18th Fibonacci Conference, we give some results concerning $\omega(F_n)$, $\omega(L_n)$, $d(F_n)$, and $d(L_n)$ which reveal a unique property of F_{18} and L_{18}. We also find the solutions to the equation $\ell(n) = 18$ and show a connection between them and F_{18}. Some examples and numerical data are also given.