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A Property of Lehmer Numbers,

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Abstract

Let L, M be integers, $L > 0$, $M \neq 0$, $(L, M) = 1$ and $L \neq M, 2M, 3M, 4M$; $K = L - 4M$, $\alpha = (L^{1/2} + K^{1/2})/2$, $\beta = (L^{1/2} - K^{1/2})/2$, $P_n = (\alpha^n - \beta^n)/(\alpha^{(n,2)} - \beta^{(n,2)})$. It is proved for all positive integers k, l and m , that if $P_k | P_{lm}/P_m$, then $l \geq k/30$ and for $L > 4M$ then $l \geq k/2$.