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Hans W Volkmer* (volkmer@uwm.edu), Department of Mathematical Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI 53201. *Instability intervals of the Ince and Hill equations.*

We investigate the length L_m of the m th instability interval of the Hill equation $(1 + \epsilon A(x))y'' + \epsilon B(x)y' + (\lambda + \epsilon C(x))y = 0$ with $A(x)$, $B(x)$, $C(x)$ being trigonometric polynomials. The leading term in the expansion of L_m in powers of the perturbation parameter ϵ is found. The results are extensions of earlier work of Levy and Keller (1963). (Received February 04, 2006)