1014-Z1-1103 Mohammed A. Qazi* (qazima@aol.com), Department of Mathematics, Tuskegee University, Tuskegee, AL 36830, and Q. I. Rahman, Dept. de mathematiques et de statistique, Universite de Montreal, CP 6128 succ Centre-Ville, Montreal, Quebec H3C3J7, Canada. Behaviour of trigonometric polynomials with only real zeros near a critical point. Preliminary report.
Let $\xi_{0}<\cdots<\xi_{2 n-1}<\xi_{2 n}=\xi_{0}+2 \pi$ be any set of $2 n+1$ consecutive critical points of a trigonometric polynomial $t$ of degree $n$ having only real zeros, all simple. Besides, let $m:=\min _{0 \leq \nu \leq 2 n-1}\left|t\left(\xi_{\nu}\right)\right|$ and $M:=\max _{0 \leq \nu \leq 2 n-1}\left|t\left(\xi_{\nu}\right)\right|$. Supposing that $m=\left|t\left(\xi_{k}\right)\right|$, we study the behaviour of $t$ in the neighbourhood of $\xi_{k}$, and decide how far away the closest of its zeros can be. (Received September 27, 2005)

