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We show that if  $\{\lambda_k\}_{k=1}^{\infty}$  is a lacunary sequence and  $h$  is a function in  $C[0, 1]$  or  $L_p[0, 1]$ ,  $1 \leq p < \infty$  such that for some  $\delta > 0$ ,  $h \neq 0$  almost everywhere in the interior of the interval  $(1 - \delta, 1)$ , then the lacunary orbit of  $h$  under the multiplication operator, namely the sequence  $\{t^{\lambda_k} h(t)\}_{k=1}^{\infty}$  is a basic sequence. (Received January 22, 2007)