

1046-41-1887

Mahmoud H. Annaby* (mhannaby@yahoo.com), Department of Mathematics, Faculty of Science-Cairo University, Giza, 12613, Egypt, and **Zeinab S. Mansour** (zeinabs98@hotmail.com), Department of Mathematics, Faculty of Science-Cairo University, Giza, 12613, Egypt. *Asymptotic formulae for eigenvalues and eigenfunctions of q -Sturm-Liouville problems.*

We investigate the asymptotic behavior of the eigenvalues and the eigenfunctions of q -Sturm-Liouville eigenvalue problems. For this aim we study the asymptotic behavior of q -trigonometric functions as well as fundamental sets of solutions of the associated second order q -difference equation. As in classical Sturm-Liouville theory, the eigenvalues behave like zeros of q -trigonometric functions and the eigenfunctions behave like q -trigonometric functions. (Received September 16, 2008)