Abstract

It is proved that the positive zeros $j_{\nu,k}$, $k = 1, 2, ...$, of the Bessel function $J_\nu(x)$ of the first kind and order $\nu > -1$, satisfy the differential inequality $j_{\nu,k} dj_{\nu,k}/d\nu > 1 + (1 + j_{nu,k}^2)^{1/2}$, $\nu > -1$. This inequality improves the well-known inequality $dj_{\nu,k}/d\nu > 1$, $\nu > -1$, which is the source of a large number of lower and upper bounds for the zeros $j_{\nu,k}$, $k = 1, 2, ...$.