Anna Kamińska, University of Memphis, Department of Mathematical Sciences, Memphis, TN 38152-3240, and Anca M Parrish* (abuican@memphis.edu), University of Memphis, Department of Mathematical Sciences, Memphis, TN 38152-3240. The q-concavity and q-convexity constants in Lorentz spaces.

We study the $q$-convexity and $q$-concavity constants of quasi-Banach Lorentz spaces $\Lambda_{p,w}$, where $0 < p < \infty$ and $w$ is a locally integrable positive weight function. Recall that $f \in \Lambda_{p,w}$ if $\|f\|_{p,w} = \left( \int_0^\infty f^* w \right)^{1/p} < \infty$, where $f^*$ is the decreasing rearrangement of $f$. In particular, we show that if $w$ is decreasing, the $q$-concavity constant is $M_q(\Lambda_{p,w}) = \sup_{x > 0} \left( \frac{\frac{1}{r} \int_0^x f^* w^r}{\frac{1}{q} \int_0^x w} \right)^{1/r}$, where $\frac{1}{r} + \frac{p}{q} = 1$ and $q > p$. We also obtain some estimates of $q$-convexity constants in the case when $w$ is increasing. (Received September 22, 2006)