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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  $\|f\|_{p,w} = \left( \int_0^\infty f^{*p} w \right)^{1/p} < \infty$ , where  $f^*$  is the decreasing rearrangement of  $f$ . In particular, we show that if  $w$  is decreasing, the  $q$ -concavity constant is  $M_{(q)}(\Lambda_{p,w}) = \sup_{x>0} \frac{\left( \frac{1}{x} \int_0^x w^r \right)^{1/r}}{\frac{1}{x} \int_0^x w}$ , 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)