NEW MEANS OF CAUCHY'S TYPE

MATLOOB ANWAR[1] AND JOSIP PEČARIĆ[2]

[1]Abdus Salam School of Mathematical Sciences, GC University, Lahore, Pakistan

[2]Faculty of Textile Technology, University of Zagreb, Croatia

Abstract. We will introduce new means of Cauchy's type $M_{r,l}^s(f,\mu)$ define for example as

$$M_{r,l}^s(f,\mu) = \Big(\frac{l(l-s)}{r(r-s)}\frac{M_r^r(f,\mu)-M_s^r(f,\mu)}{M_l^l(f,\mu)-M_s^l(f,\mu)}\Big)^{\frac{1}{r-l}},$$

in the case when $l \neq r \neq s, l, r \neq 0$ We will show that this new Cauchy's mean is monotonic that is the result:

Theorem 1. *Let $t, r, u, v \in \mathbb{R}$, such that, $t \leq v, r \leq u$. Then we have*

$$M_{t,r}^s \leq M_{v,u}^s$$

We will also give some related comparison results.