ROCKY MOUNTAIN
JOURNAL OF MATHEMATICS
Volume 23, Number 3, Summer 1993

ON ABSOLUTE WEIGHTED MEAN SUMMABILITY

C. ORHAN AND M.A. SARIGÖL

1. Definitions and notation. Let Σa_n be an infinite series with a sequence of its partial sums (s_n), and let $A = (a_{nk})$ be an infinite matrix. Assume that

$$T_n = \sum_{v=0}^{\infty} a_{nv} s_v, \qquad n = 0, 1, \dots \tag{1}$$

exists (i.e., the series on the right-hand side converges for each n). If

$$\sum_{n=1}^{\infty} n^{k-1} |T_n - T_{n-1}|^k < \infty, \tag{2}$$

then Σa_n is said to be $|A|_k$ summable, where $k \geq 1$. When $k = 1$, we say that Σa_n is absolutely summable by the matrix A or simply summable $|A|$.

Now let A be a Riesz matrix, i.e., weighted mean matrix defined by

$$a_{nv} = p_v / P_n \qquad \text{for } 0 \leq v \leq n, \quad \text{and} \quad a_{nv} = 0 \qquad \text{for } v > n$$

where (p_n) is a sequence of positive real numbers, and

$$P_n = p_0 + p_1 + \cdots + p_n, \qquad P_{-1} = 0, \qquad P_n \to \infty \text{ as } n \to \infty.$$

If no confusion is likely to arise, we say that Σa_n is summable $|R, p_n|_k$, $k \geq 1$, if (2) holds.

Using analytical techniques, it is shown in [**3**] that the summability methods $|R, p_n|_k$ and $|R, q_n|_k$, $k \geq 1$, are equivalent under certain conditions.

Received by the editors on October 11, 1991, and in revised form on February 13, 1992.
This research was supported by the Scientific and Technical Research Council of Turkey, TBAG-ÇG2.