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Finite Sums of Vectors in Right Module over Associative Ring

Michał Muzalewski
Warsaw University
Białystok

Wojciech Skaba
Nicolaus Copernicus University
Toruń

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The articles [5], [1], [8], [2], [6], [3], [7], and [4] provide the notation and terminology for this paper.

For simplicity, we use the following convention: R denotes a ring, a denotes a scalar of R, V denotes a right module over R, v, w, u denote vectors of V, F, G denote finite sequences of elements of the carrier of V, and k denotes a natural number.

One can prove the following propositions:

(9)[1] If $\operatorname{len} F = \operatorname{len} G$ and for all k, v such that $k \in \operatorname{dom} F$ and $v = G(k)$ holds $F(k) = v \cdot a$, then $\sum F = \sum G \cdot a$.

(10) If $\operatorname{len} F = \operatorname{len} G$ and for every k such that $k \in \operatorname{dom} F$ holds $G(k) = F_k \cdot a$, then $\sum G = \sum F \cdot a$.

(21)[2] $\sum(\varepsilon_{(\text{the carrier of } V)}) \cdot a = 0_V$.

(23)[3] $\sum\langle v, u\rangle \cdot a = v \cdot a + u \cdot a$.

(24) $\sum\langle v, u, w\rangle \cdot a = v \cdot a + u \cdot a + w \cdot a$.

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[1] The propositions (1)–(8) have been removed.
[2] The propositions (11)–(20) have been removed.
[3] The proposition (22) has been removed.

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