which is assumed to be such that it may be integrated term-by-term in the interval $0 \leqq x \leqq \pi$. Making use of the method by which (I) was obtained from (5), we find the expansion

$$\text{(III)} \qquad \phi(x) = \pi 2^{\nu-1} \sum_{n=1}^{\infty} \frac{a_n}{n^{\nu-1}} J_{\nu/2}^2\left(\frac{nx}{2}\right), \qquad (0 < x < \pi,\ \nu \geqq 1),$$

where

$$\phi(x^{1/2}) = p^{-1/2} x^{-1/2} f(x^{1/2}).$$

If the above method is applied to Neumann and Kapteyn series, well known expansions in terms of squares of Bessel functions are obtained. Expansions (I), (II), and (III) have seemingly never been published.

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NOTE CONCERNING GROUP POSTULATES*

BY RAYMOND GARVER

Let there be given a set of elements $G(a, b, c, \cdots)$ and a rule of combination, which may be called multiplication, by which any two elements, whether they be the same or different, taken in a specified order, determine a unique result which may or may not be an element of G. This system is called a group if it satisfies certain postulates; various sets of postulates have been given by different writers, and such matters as the independence of postulates and relations between sets of postulates have been pretty thoroughly covered. Most of this work was done in this country in the early part of the present century.†

It seems, however, that one interesting and rather important

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† See Pierpont, Annals of Mathematics, (2), vol. 2 (1900), p. 47; Moore, Transactions of this Society, vol. 3 (1902), pp. 485–492, vol. 5 (1904), p. 549 and vol. 6 (1905), pp. 179–180; Huntington, this Bulletin, vol. 8 (1902), pp. 296–300 and 388–91 and Transactions of this Society, vol. 4 (1903), p. 30, vol. 6 (1905), pp. 34–35 and 181–197; Dickson, Transactions of this Society, vol. 6 (1905), pp. 198–204.