(c) $A_2 = 8\sum q^n(\sum (-1)^d\delta \cos 2dy) - 8\sum q^n(\sum \delta)$,

(d) $A_3 = 1 + 8\sum q^n(\sum (-1)^t\tau \cos 2ty) - 8\sum q^n(\sum \delta)$,

(e) $B_0 = 1/2 + 2\sum q^n(\sum \delta) + 8\sum q^n(\sum (2\tau - t) \cos 2ty)$,

(f) $B_1 = -3/2 + \csc^2 y + 2\sum q^n(\sum \delta)$
$+ 8\sum q^n(\sum (2\delta - d) \cos 2dy)$,

(g) $B_2 = -3/2 + \sec^2 y + 2\sum q^n(\sum \delta)$
$+ 8\sum q^n(\sum (2\delta - d)(-1)^d \cos 2dy)$,

(h) $B_3 = 1/2 + 2\sum q^n(\sum \delta)$
$+ 8\sum q^n(\sum (-1)^t(2\tau - t) \cos 2ty)$.

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A CONNECTEDNESS THEOREM IN ABSTRACT SETS*

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This note gives a variation of a theorem of Sierpinski and Saks.† The theorem is valid in spaces which have the Borel-Lebesgue property (Axiom I of Saks‡) and which satisfy axioms (A), (B), (C), and (6) as given by Hausdorff.§ We use the term *connected* for a closed set to mean that the set cannot be expressed as the sum of two mutually exclusive non-vacuous, closed sets.||

THEOREM. *Let F be a collection of closed sets at least one of which is compact. Let F contain more than one element and let it be true that the sets of each finite sub-collection of F have a non-vacuous, connected set in common when this sub-collection contains at least two elements of F. Under these hypotheses, there is a closed, non-vacuous, connected set common to all of the sets of collection F.*

PROOF. Let F_0 be a compact member of collection F and let K be the set of points common to all of the sets of collection F.

* Presented to the Society, December 1, 1934.

† See Saks, Fundamenta Mathematicae, vol. 2 (1921), pp. 1–3.

‡ Saks, ibid., p. 2.

§ *Mengenlehre*, 1927, pp. 228–229.

|| The notion of *limit point* may be defined and this definition used to describe connectedness. We use *domain* and *open set* interchangeably.