

being nilpotent (or in the ideal), where the subscripts tag corresponding images a in A , and so on. Two spectra S and Σ may be subjected to a generalized calculus guided by a distinct master sfield M . A cleft R is generated by one spectrum. If R properly contains a one-sfield spectrum it must be uncleft. The same holds if two spectra (relatively unordered) have overlapping images in M . The singular case of one element generation is easily handled in the case of algebras. The spectra fall into invariant subspaces, and an M without automorphisms is equivalent to one-spectrum subspaces. A spectrum may sometimes be generated by a function $k(x, t)$, where the parameters x generate a sfield and the t generate the equivalence classes. (Received March 22, 1946.)

135. Morgan Ward: *Note on the order of the free distributive lattice.*

If r_n denotes the order of the free distributive lattice on n elements, and if we set $\log_2 r_n$ equal to $2^n \phi(n)$, then for large n , $1/n^{1/2} < \phi(n) < 1/4$ so that $\log_2 \log_2 r_n \sim n$. Computational evidence and combinatorial arguments suggest that $n^{1/2} \phi(n) \rightarrow \infty$, but the exact order of $\phi(n)$ is unknown. Incidentally the value of r_6 was computed. It is 7,828352. The method of computation devised easily verified Randolph Church's value 7579 for r_6 (Duke Math. J. vol. 6 (1940) pp. 732-734) but is not powerful enough to evaluate r_7 without prohibitive labor. (Received March 22, 1946.)

ANALYSIS

136. R. H. Bing: *Converse linearity conditions.*

An example is given of a bounded function $f(x)$ ($a < x < b$) having a derivative on its range and being nonlinear on every subinterval of its range which is such that each point of the graph of $f(x)$ and each point between two points of the graph of $f(x)$ is halfway between some two points of the graph of $f(x)$. (Received March 16, 1946.)

137. Garrett Birkhoff and L. J. Burton: *A weakening of the Hölder conditions for Newtonian force fields.*

Let $\rho(x)$ be a continuous density function of position $x = (x_1, \dots, x_n)$ near a point $a = (a_1, \dots, a_n)$ in Euclidean n -space. It is shown that the improper integrals $\iiint \rho(x_i - a_i) dR/r^n$ defining the force components for Newtonian attraction exist as improper Riemann multiple integrals (that is, are absolutely integrable) if and only if $\iiint \rho d\omega dr/r^{n-1} < +\infty$, where $d\omega$ denotes infinitesimal spherical area. The sufficiency of the usual Hölder conditions for convergence is a weak corollary of this. If $\rho dr d\omega = dm$, the corresponding result for Stieltjes integrals is obtained. (Received March 25, 1946.)

138. D. G. Bourgin: *Approximate isometries.*

The Hilbert space results of Hyers and Ulam (Bull. Amer. Math. Soc. vol. 51 (1945) pp. 288-292) are extended to the spaces $L_p(0, 1)$, $1 < p < \infty$. (Received March 22, 1946.)

139. R. C. Buck: *An extension of Carlson's theorem.*

Let $K^*(a, c)$ be the class of functions regular and of order 1 in $R\{z\} \geq 0$, and of type a on the whole positive real axis and type c on the imaginary axis. If A is a subset of the set I of all integers, denote by $\gamma(A)$ the least number for which the following theorem is true: if $f(z) \in K^*(a, c)$, $c < \gamma(A)$, and if $f(z)$ vanishes in A then it vanishes