$L(S)=L(S_1)+L(S_2)$ (Rado and Reichelderfer, *On a stretching process for surfaces*, Amer. J. Math. vol. 61 (1939)). (Received November 28, 1942.)

57. Antoni Zygmund: *A property of the zeros of Legendre polynomials.*

Suppose that $n<m$ are positive integers and that a polynomial $\phi(x)$ of degree n does not exceed M in absolute value at the zeros of the Legendre polynomial $P_m(x)$. Then $|\phi(x)| \leqq A(\delta)M$ for $-1\leqq x\leqq +1$, where $A(\delta)$ depends only on the number δ defined by the equations $m/n=1+\delta$. Similar results hold for the integrals $\int_{-1}^{+1}|\phi(x)|^r dx$ with $r\geqq 1$. (Received November 23, 1942.)

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58. Stefan Bergman: *A formula for the stream function of compressible fluid flow.*

Let $\mathfrak{q}=ve^{i\theta}$ denote the velocity vector. A flow, $\mathcal{J}$ is said to be of the type D_n, if the boundary of the domain, B, in which $\mathcal{J}$ is defined consists of $2n$ segments S_K such that along each S_{2K}, $K=1, 2, \cdots, n$, $\theta=\theta_K$ is constant and along each S_{2K-1}, v is constant. (S_{2K} are segments of straight lines, S_{2K-1} are so-called "free boundaries.") The image of B in the logarithmic plane (see *Notes on hodograph method in the theory of compressible fluid*, publication of Brown University, p. 6) is a polygonal domain. In the case of an incompressible fluid the stream function of $\mathcal{J}$ can be represented as a closed expression with n parameters. The author considers subsonic flows, $\mathcal{C}$, of compressible fluid. Using certain linear operators (see above mentioned *Notes*, §§6 and 10, and Trans. Amer. Math. Soc. vol. 53 (1943) pp. 130–155) he derives a similar explicit formula with n parameters for the flows $\mathcal{C}$ of "nearly type D_n," that is to say, for flows whose boundaries consist of $2n$ segments along which θ or v assume nearly constant values. The angles θ_K may be prescribed. (Received November 21, 1942.)

59. R. M. Foster: *On the average resistance of an electrical network.*

In an electrical network composed of two-terminal resistance elements, let J· designate the total resistance measured across the terminals of an element, the internal resistance of this element being r_i, and let S_i be the driving-point resistance measured in the branch containing this element r_i. It is shown in this paper that, for any network configuration whatsoever, $\sum J_i/r_i=R$ and $\sum r_iS_i=N$ (the summation being extended over all the elements of the network), with $R=V-P$ and $N=E-V+P$, where E is the number of elements, V the number of vertices, and P the number of separate, unconnected parts of the configuration. The average values of the ratios J_i/r_i and r_i/S_i are thus R/E and N/E, respectively. If all the elements of the network have the same internal resistance r, and if there is complete symmetry among the elements so that the resistance measured across any one element is necessarily equal to that across any other element, then $J_i=rR/E$ and $S_i=rE/N$. These results are extended to generalized impedances, and to infinite networks. (Received November 23, 1942.)

60. A. H. Fox: *Integral representation of the flow of a compressible fluid around a cylinder.*

The steady irrotational two-dimensional flow of a compressible fluid may be approximated by the flow of a hypothetical incompressible fluid in which the pressure is