

ABSTRACTS OF PAPERS

SUBMITTED FOR PRESENTATION TO THE SOCIETY

The following papers have been submitted to the Secretary and the Associate Secretaries of the Society for presentation at meetings of the Society. They are numbered serially throughout this volume. Cross-references to them in the reports of the meetings will give the number of this volume, the number of this issue, and the serial number of the abstract.

277. Mr. G. R. Kraus and Professor J. H. Neelley: *A classification of rational plane cubic curves.*

This paper gives methods of distinguishing the types of the cubic curve with special reference to the degenerate types. Using parametric notation the authors have shown how the different degenerate types may be detected and hence how each may be expressed. (Received May 25, 1937.)

278. Dr. J. H. Curtiss: *A note on the Cesàro method of summation.*

The following results are obtained: (1) If the sequences $\{S_{\lambda_n+K}\}$ are respectively summable (C, α) to the values s_K , $K=0, 1, \dots, \lambda-1$, for some $\alpha > 0$, then the sequence $\{S_n\}$ is summable (C, α) to the value $(s_0 + s_1 + \dots + s_{\lambda-1})/\lambda$. (2) If the series $\sum \bar{U}_{\lambda_n+K}$ are respectively summable (C, α) to the values u_K , $K=0, 1, \dots, \lambda-1$, for some $\alpha > -1$, then the series $\sum \bar{U}_n$ is summable to the value $u_0 + u_1 + \dots + u_{\lambda-1}$. Examples are given to show that the theorems cannot be strengthened. (Received May 6, 1937.)

279. Dr. W. E. Sewell: *The derivative of a polynomial on various curves of the complex plane.*

Let $P_n(z)$ be a polynomial of degree n in $z = x + iy = re^{i\theta}$ and let $|P_n(z)| \leq M$ on C . If C is an epicycloid or hypocycloid expressed in the usual parametric form with a divisible by b , then $|P_n'(z) \sin [a\phi/(2b)]| \leq Mn/(2b)$, z on C . If C is a cardioid with polar equation $r = a(1 - \cos \theta)$, then $|P_n'(z) \sin \theta/2| \leq Mn/a$, z on C . If C is a rose curve with polar equation $r = a \cos k\theta$, then $|P_n'(z)| \leq M(n+1)/a$, z on C . Of course these evaluations are independent of the position of the curves in the plane. (Received May 21, 1937.)

280. Professor D. V. Widder: *The successive iterates of the Stieltjes kernel expressed in terms of the elementary functions.*

The Stieltjes kernel is the function $H_1(x, y) = (x+y)^{-1}$. Its successive iterates are defined successively by $H_n(x, y) = \int_0^\infty H_1(x, t)H_{n-1}(t, y)dt$. It is proved in this note that $H_n(x, y)$ can be expressed in terms of the elementary functions. In fact it is a linear combination of a finite number of the functions