This gives an application of the methods recently discovered by the author to lattice points in the region $|x^n+y^n| \leqq 1$ where $m=p/q>4$ and p, q are odd integers. (Received April 9, 1945.)

ANALYSIS

109. R. P. Agnew: *Tauberian theorems for Nörlund summability.*

It is shown that a Tauberian theorem for Nörlund summability given by R. P. Cesco (Universidad Nacional de La Plata, Publicaciones de la Facultad de Ciencias Fisicomatematicas (2) vol. 4 (1944) pp. 443–445) and more general theorems are implied by familiar Tauberian theorems for Abel summability. (Received May 14, 1945.)

110. R. H. Cameron: *Some examples of Fourier-Wiener transforms of analytic functionals.*

Let $F[x]=F[x(\cdot)]$ be a functional which is defined throughout the space K of complex continuous functions $x(t)$ defined on $0 \leqq t \leqq 1$ and vanishing at $t=0$, and let F possess the property that $F[x+iy]$ is Wiener summable in x over C for each fixed $y(\cdot)$ in K. (C is the subspace of all real functions in K.) Then the functional $G[y]=\int_C^W F[x+iy]d_W x$ is called the Fourier-Wiener transform of $F(x)$. Examples are given of various functionals $F(x)$ which have the property that the transforms of their transforms exist and equal $F(-x)$. The fact that there exist extensive classes of functionals having this property is proved in a paper by W. T. Martin and the author. (Received May 9, 1945.)

111. R. H. Cameron and W. T. Martin: *Fourier-Wiener transforms of analytic functionals.*

Let K be the space of all continuous complex functions $x(t)$ defined on $0 \leqq t \leqq 1$ which vanish at $t=0$, let C be the subset of all real functions of K, and let $F[x]$ be a functional defined on K. Then, as defined by one of the authors in another paper, $G(y)=\int_C^W F(x+iy)d_W x$ is called the Fourier-Wiener transform of $F(x)$ if it exists for all y in K. The purpose of the present paper is to exhibit three extensive classes of functionals which are taken into themselves in a one-to-one manner by the Fourier-Wiener transformation in such a way that the inverse transformation is $F(x)=\int_C^W G(y-ix)d_W y$. In particular, this property is enjoyed by the class E_m of functionals $F(x)$ which are mean continuous, of mean exponential type, and "entire," that is, continuous in the topology defined by root mean square distance between functions, bounded by $A \exp [B\int_0^1 x(t)^2 dt]^{1/2}$, and "entire" in the sense that $F(x+\lambda y)$ is entire in λ for all x and y in K. (Received May 9, 1945.)

112. Nelson Dunford and Robert Schatten: *On the associate and conjugate space for the direct product of Banach spaces.*

The direct product $E_1 \otimes_N E_2$ of two Banach spaces E_1, E_2 (Trans. Amer. Math. Soc. vol. 53 (1943) pp. 195–217), which naturally depends on the norm N, determines uniquely an "associate space" $\bar{E}_1 \otimes_{\bar{N}} \bar{E}_2$ ($\bar{N}$ is the norm "associate" with N) and a conjugate space $\overline{E_1 \otimes_N E_2}$. It is shown that for a "natural crossnorm," $\bar{L} \otimes_{\bar{N}} \bar{L}$ is a proper subset of $\overline{L \otimes_N L}$. Similarly, for a "natural crossnorm," $\bar{l} \otimes_{\bar{N}} \bar{l}$ is a proper subset of $\overline{l \otimes_N l}$. A related example of a non-reflexive crossspace $E_1 \otimes_N E_2$ is constructed, for which E_1, E_2, and N are all reflexive. (Received April 23, 1945.)

113. Herbert Federer: *Coincidence functions and their integrals.*