

where $F(N)$ is the number of solutions of

$$N = (2n + 1)(2n + 4b + 3) - 4a^2 \quad (a = 0, \pm 1, \dots \pm n)$$

and n, b are positive integers. On the other hand Hermite shows that $F(N)$ is nothing but Kronecker's function F defined above. Let us now set $x = 0$ in (5). The left side vanishes, and if we arrange the right side according to powers of q , Hermite finds, letting d', d'' be divisors of N such that $d' > \sqrt{N}$, and $d'' < \sqrt{N}$, that

$$A\Theta(0) = \frac{1}{2} \sum q^{iN} (\sum d' - \sum d'').$$

The coefficient of q^{iN} on the right Kronecker calls $\Psi(N)$; the left side we see is the product of two infinite series in q . Performing the multiplication and equating coefficients of like powers of q gives finally

$$F(N) + 2F(N - 2^2) + 2F(N - 4^2) + \dots \\ + 2F(N - 4k^2) = \frac{1}{2} \Psi(N),$$

a relation between the number of properly primitive quadratic forms with the determinants $-N, -(N-4), -(N-16), \dots$

If we have gone into some details in speaking of the papers 6), 12), and 15), it is partly because their importance demands more than a passing notice and partly with the hope that our remarks may awaken the interest of some reader of this BULLETIN to look farther into these matters.

JAMES PIERPONT.

SHORTER NOTICES.

Serret's Lehrbuch der Differential- und Integralrechnung. Dritte Auflage, dritter Band,* neu bearbeitet von GEORG SCHEFFERS. Leipzig, Teubner, 1909. xii + 658 pp.

THIS book on differential equations is the third and last volume of Scheffer's "Umarbeitung" of the second edition of Serret's *Lehrbuch*. In comparison with the first two volumes, there are many more alterations made in this third edition of the third volume. In fact one can hardly recognize any traces

*The first two volumes of this work were reviewed in the BULLETIN, vol. 15 (1908-09), p. 140.