proper representations. Inverting this procedure, Professor Bell, in his second paper, proves formulas of remarkable simplicity for the expression of the proper number in terms of the total, so that if the latter is within reach of analysis, so also now is the former. A few illustrations are given in the derivation of new results concerning 6, 8, 10 or 12 squares and other simple quadratic forms. The cases of 10, 12 squares present some unexpected singularities.

7. From 1860 to 1864 Liouville published in his *Journal* numerous theorems on the number of total and proper representations of integers in special quadratic forms of four and six indeterminates. His formulas for total numbers of representations were for the most part proved in 1890 by Pepin, those omitted being readily demonstrable by elliptic functions and other algebraic means. The formulas for proper representations have not hitherto been proved. Modifying the general principles of his second paper to fit Liouville's forms, Professor Bell demonstrates all of the unproved results very simply. The paper will appear in the *Journal de Mathématiques pures et appliquées*, (in French), and a fuller abstract shortly in the Paris *Comptes Rendus*.

8. Professor Winger's paper appeared in full in the November BULLETIN.

B. A. BERNSTEIN,
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ON THE PROOF OF CAUCHY'S INTEGRAL FORMULA BY MEANS OF GREEN'S FORMULA.

BY MR. J. L. WALSH.

(Read before the American Mathematical Society December 30, 1919.)

IT is well known that Cauchy's integral formula for an analytic function $f(z) = u(x, y) + iv(x, y)$ of the complex variable $z = x + iy$ is analogous to Green's formula for the functions u and v, and that moreover Cauchy's formula can be proved from Green's formula. Picard (Traité d'Analyse (1905), volume II, page 114) gives this proof *assuming that*