We find thus Baire's well known theorem to the effect that the limit of a sequence of continuous functions is at most point-wise discontinuous.

In connection with convergent sequences of continuous functions, the saltus function here considered can be related with the *measure of non-uniform convergence* introduced by Hobson and Osgood.* These two functions vanish at the same points, which fact shows, of course, that the above proof of Baire's theorem is not fundamentally distinct from that based on the measure of non-uniform convergence. There is no other relation of equality between the two functions.

COLUMBIA UNIVERSITY.

A NEW METHOD IN DIOPHANTINE ANALYSIS.

BY PROFESSOR L. E. DICKSON.

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1. *Introduction and Summary.* In the preceding number of this BULLETIN (p. 312) I gave reasons why due caution should be observed toward the literature on the solution of homogeneous equations in integers. The valid knowledge concerning this subject is much less than has been usually admitted. The lack of general methods is even greater than in the subject of non-homogeneous equations. The chief aim of the present paper is to suggest such a method, based on the theory of ideals. The method is applicable in simple cases (§§ 2–4) without introducing ideals.

For the sake of brevity we shall restrict attention to the problem of finding all integral solutions of the equation

$$x_1^2 + ax_2^2 + bx_3^2 = x_4^2,$$

an equation admitted† to be difficult of treatment by any known methods, and previously solved completely in integers only in the single case $a = b = 1$.

Let us write

$$x_4 - x_1 = z, \quad x_4 + x_1 = w.$$

Then from the integral solutions of $ax^2 + by^2 = zw$ we must

* Hobson, loc. cit., p. 484.

† Carmichael, *Diophantine Analysis*, 1915, p. 38.