second series is identically zero, so the inversion formula does not give an actual solution. Under these circumstances we are forced to leave the question of the completeness of S_1+1 in $C[0, 1]$ unanswered.*

YALE UNIVERSITY AND MASSACHUSETTS INSTITUTE OF TECHNOLOGY

GROUPS OF MOTIONS IN CONFORMALLY FLAT SPACES

BY JACK LEVINE

1. *Introduction.* In this paper we consider the problem of determining the conditions which a conformally flat space must satisfy in order that it may admit a group of motions. These conditions are expressed in Theorem 1. Conformally flat spaces admitting simply transitive groups of motions are considered in the last section. All summations are from 1 through n unless otherwise indicated.

2. *Killing's Equations.* The equations for determining the possible existence of groups of motions in a metric space are known as Killing's equations and are given by†

$$\xi^k \frac{\partial g_{ij}}{\partial x^k} + g_{ik}\frac{\partial \xi^k}{\partial x^j} + g_{jk}\frac{\partial \xi^k}{\partial x^i} = 0. \tag{1}$$

If V_n is conformally flat, there exists a coordinate system in which $g_{ij}=e_i\delta_j^i h^2$, where $e_i=\pm 1$. In this coordinate system (1) reduce to

$$e_i\frac{\partial \xi^i}{\partial x^j} + e_j\frac{\partial \xi^j}{\partial x^i} = 0, \qquad (i \neq j,\ i, j \text{ not summed}), \tag{2}$$

$$\xi^k\frac{\partial H}{\partial x^k} + \frac{\partial \xi^i}{\partial x^i} = 0, \qquad (i \text{ not summed},\ H = \log h). \tag{3}$$

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* The completeness of $1+S(\beta+1, \beta, \lambda)$ in $C[0, 1]$ is proved for $-1<\beta\leqq 2$ in a paper to appear in the Annals of Mathematics.

† L. P. Eisenhart, *Riemannian Geometry*, p. 234.