

# *Weierstrass' Characteristic and Covariant Constant Vector Fields*

## *III<sub>b</sub>. Equivalence Subclasses\**

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**Summary.** This is a direct continuation of the paper "Weierstrass' Characteristic and Covariant Constant Vector Fields III<sub>a</sub> : Equivalence Subclasses" which contains the first five Sections of the first Part. This paper contains the remaining sixth and seventh Sections of the first Part and all three Sections of the second Part. While the first Part is concerned with classification of the curvature tensor, the second part deals with the corresponding classification of the metric tensors.

**6. Illustrations.** In this Section we are displaying two examples of the theory developed in the previous Sections. The first one concerns a real characteristic and the second one a complex characteristic.

1)<sup>1</sup> Consider the real characteristic [2 2 2]. The corresponding canonical matrix  $P_a{}^b$  is

$$(6.1) \quad ((P_b{}^a)) = \begin{matrix} & b \backslash a \\ \begin{pmatrix} \alpha & 1 & \cdot & \cdot & \cdot \\ \cdot & \alpha & \cdot & \cdot & \cdot \\ \cdot & \cdot & \gamma & 1 & \cdot \\ \cdot & \cdot & \cdot & \gamma & \cdot \\ \cdot & \cdot & \cdot & \mu & 1 \\ \cdot & \cdot & \cdot & \cdot & \mu \end{pmatrix} & , & \alpha + \gamma + \mu = 0. \end{matrix}$$

The canonical matrix  $((e_{ab}))$  is not uniquely determined, but the absolute values  $\epsilon_{ab}$  of the elements  $e_{ab}$  are. We make the following possible choice

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<sup>1</sup> For the proofs of (6.2)–(6.5) see [9], Section 2.