

THEORY OF LINEAR DIFFERENTIAL EQUATIONS CONTAINING A PARAMETER.

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Index.

1. Introduction.
2. Some Preliminary Facts.
3. Formal Integration.
4. Analytic Integration.
5. Iterations.
6. The Fundamental Existence Theorem.
7. Non-homogeneous Equations.
8. Integro-differential Equations.
9. Concerning Boundary Value Problems.

1. **Introduction.** Our present object is to establish the *asymptotic properties of the solutions* of a linear differential equation of order n

$$(A_1) \quad L_n(x, \lambda; y) \equiv \sum_{k=0}^n {}_1a_{n-k}(x, \lambda) y^{(k)} = 0$$

$$[{}_1a_0(x, \lambda) \not\equiv 0; {}_1a_n(x, \lambda) \not\equiv 0]^1,$$

in so far as the parameter λ is concerned. The theory will be given for the complex plane of λ ; moreover, *no restrictions will be made concerning the λ -formal series solutions of (A_1) .* The coefficients in (A_1) will be assumed to be indefinitely

¹ $f^{(k)}$ ($k \geq 0$) here and in the sequel denotes $\frac{\partial^k f}{\partial x^k}$.