Liouville's Theorem (Differential algebra)

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Sber

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Through the all of presentation we will suppose that all fields have 0 characteristic.

Basic definitions

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Field F is differential if it's equipped with the unary function $^\prime$ such that:

- (a + b)' = a' + b'
- (ab)' = a'b + ab'

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Subfield $K \subseteq F$, $K = \{a \in F \mid a' = 0\}$ is called subfield of constants.

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Differential extension of the differential field F is field E such that $E \supset F$ and there is the same differentiation ' on E.

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Let F be the differential field. Then

▶ b is called the logarithm of a if $b' = \frac{a'}{a}$ → $a \rightarrow a \rightarrow b$

What is integrability in elementary functions

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