Liouville's Theorem (Differential algebra)

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What is integrability in elementary functions

Definition

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

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

Definition

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

Definition

Differential extention of the differential field F is field E such that $E \supseteq F$ and there is the same differentiation $'$ on E