Prüfungsnotizen Analysis 2

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Contents

Lookup Table

Common Derivatives

Function	Derivative
$sin(x)$	$cos(x)$
$cos(x)$	$-sin(x)$
$tan(x)$	$\frac{1}{cos^2(x)}$
$arcsin(x)$	$\frac{1}{\sqrt{1-x^2}}$
$arccos(x)$	$-\frac{1}{\sqrt{1-x^2}}$
$arctan(x)$	$\frac{1}{1+x^2}$

Common Antiderivatives

Function	Antiderivative
$sin(x)$	$-cos(x)+C$
$cos(x)$	$sin(x)+C$
$\frac{1}{x}$	$ln(\|x\|)+C$

Ordinary Differential Equations

This is a test

Differential Calculus in $\mathbb{R}^n$

Partial Derivatives

Jacobi Matrix

For $f(x) = (f_1(x), ..., f_m(x))$, the Jacobi matrix is defined as $J_f(x) = (\partial_{x_j})$

Gradient

Gradient

Hessian Matrix

$H_f(x) = (\partial_{x_i,x_j} f)_{1\leq i,j\leq n}$

Integration in $\mathbb{R}^n$