

Integrations- bereich \ Integrand	$f$	$\vec{f}$
1D $\subseteq \mathbb{R}$	$\int_a^b f dx$	
1D $\subseteq \mathbb{R}^n$		$\int_a \vec{f} d\vec{x}$
2D $\subseteq \mathbb{R}^2$	$\iint_D f dV$	$\updownarrow$ Stokes (1D $\subseteq \mathbb{R}^3$ )
2D $\subseteq \mathbb{R}^3$	$\iint_{\mathcal{A}} f dO$	$\iint_{\mathcal{A}} \vec{f} d\vec{O}$
3D $\subseteq \mathbb{R}^3$	$\iiint_K f dV$	$\leftarrow$ Gauß $\rightarrow$
n-dim $\subseteq \mathbb{R}^n$	$\int \dots \int_K f dV$	

$$d\vec{x} = \dot{\vec{x}} dt$$

$$dO = |\vec{x}_u \times \vec{x}_v| du dv$$

$$d\vec{O} = (\vec{x}_u \times \vec{x}_v) du dv$$

$$dV = \left| \det \frac{\partial x_j}{\partial q_i} \right| dq_1 \dots dq_n$$