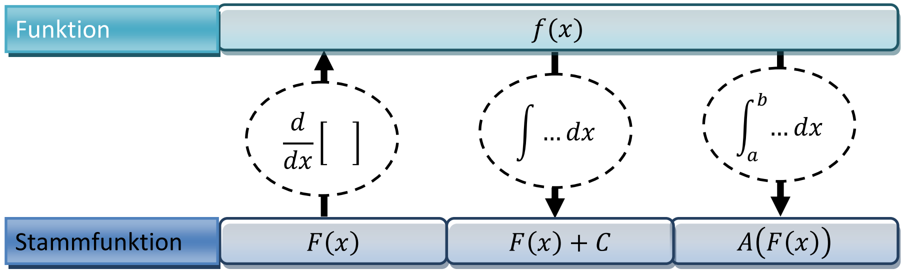
	DIFFERENZIEREN	INTEGRIEREN	
Operator	$\frac{d}{dx}[F(x)] = F(x)' = f(x)$	$\int f(x)dx = F(x) + C$	$\int_a^b f(x)dx = A(F(x))$
Übersicht	$(e^x)' = e^x$ $(e^{ax})' = a * e^{ax}$ $(a^x)' = \ln a * a^x$ $(\ln x)' = x^{-1}$ $(x^{-1})' = -x^{-2}$ $(\log_a x)' = (\ln a * x)^{-1}$		$\int e^x dx = e^x + C$ $\int e^{ax} dx = \frac{1}{a} * e^{ax} + C$ $\int a^x\, dx = \frac{a^x}{\ln a} + C$ $\int \ln x\ dx = x(\ln x - 1) + C$ $\int x^{-1}\, dx = \ln\lvert x\rvert + C$ $\int \frac{dx}{ax+b} = \frac{1}{a}\ln\lvert ax+b\rvert + C$
Grundregeln	$(\lambda * x^n)' = n * \lambda * x^{n-1}$	$\int \lambda * x^n dx = \frac{\lambda}{n+1} * x^{n+1} + C$	$\int_a^b \lambda * x^n dx = \lambda * [F(x)\ ]_a^b = \lambda * (F(b) - F(a))$
Summenregel	$(f \pm g)' = f' \pm g'$	$\int (f \pm g)dx = \int f\, dx \pm \int g\, dx$	$\int_a^b (f \pm g)dx = \int_a^b f\, dx + \int_a^b g\, dx$
Spezielle Regeln	(siehe Tabelle unten)	**Integral von a nach a:** $\int_a^a f(x)dx = 0$ **Zerlegung:** $\int_a^c f(x)dx = \int_a^b f(x)dx + \int_b^c f(x)dx$ **Vertauschungsregel:** $\int_a^b f(x)dx = -\int_b^a f(x)dx$ $x * C \neq x + C$	
f(x) mal f(x)	**Produktregel** $(f * g)' = f' * g + f * g'$	**Partielle Integration** $\int f g' dx = fg - \int f' g dx$	**Partielle Integration** $\int_a^b f g' dx = [fg\ ]_a^b - \int_a^b f' g dx$
f(x) durch f(x)	**Quotientenregel** $\left[\frac{f}{g}\right]' = \frac{f' * g - f * g'}{g^2}$	**Partialbruchzerlegung** $\frac{5x+4}{(x-a)^2} = \frac{A}{(x-a)} + \frac{B}{(x-a)^2} = \frac{A(x-a)+B}{(x-a)^2} = \frac{x(A) - aA + B}{(x-a)^2} \rightarrow \left\lvert \begin{matrix} A = 5 \\ -aA + B = 4 \end{matrix} \right\rvert$	
f(x) in f(x)	**Kettenregel** $[f_a(f_i(x))]' = f_a'(f_i(x)) * f_i'(x)$	**Substitution** $\int \frac{1}{3x-2} dx = \int \frac{1}{u} \frac{du}{3} = \frac{1}{3}\ln\lvert 3x-2\rvert + C$ $3x - 2 = u$ $du/_{dx} = 3$ $dx = du/_3$	**Substitution** $\int_1^2 \frac{1}{3x-2} dx = \int_1^4 \frac{1}{u} \frac{du}{3} = \frac{1}{3}\Big[\ln\lvert u\rvert\Big]_1^4$

Spezielle Regeln (Differenzieren):

	$f' < 0$	$f' = 0$	$f' > 0$
$f'' < 0$		max	
$f'' = 0$	Wendepunkt	höherer Ordnung	Wenepunkt
$f'' > 0$		min	