Klausur Mathematik für Informatiker II

Tabelle der Grundintegrale

$$\int x^\alpha \, dx = \frac{1}{\alpha+1} x^{\alpha+1} + c \qquad \text{für } \alpha \neq -1$$

$$\int \frac{1}{x} \, dx = \ln|x| + c \qquad \text{für } x \neq 0$$

$$\int \sin x \, dx = -\cos x + c$$

$$\int \cos x \, dx = \sin x + c$$

$$\int \frac{1}{\cos^2 x} \, dx = \tan x + c$$

$$\int \frac{1}{\sin^2 x} \, dx = -\cot x + c$$

$$\int \frac{1}{\sqrt{1-x^2}} \, dx = \arcsin x + c \qquad \text{für } |x| < 1$$

$$\int \frac{1}{1+x^2} \, dx = \arctan x + c$$

$$\int \frac{1}{1-x^2} \, dx = \frac{1}{2} \ln \frac{1+x}{1-x} + c \qquad \text{für } |x| < 1$$

$$\int e^x \, dx = e^x + c$$

$$\int \sinh x \, dx = \cosh x + c$$

$$\int \cosh x \, dx = \sinh x + c$$

$$\int \frac{1}{\sqrt{1+x^2}} \, dx = \ln\left(x + \sqrt{1+x^2}\right) = \operatorname{arsinh} x + c$$

$$\int \frac{1}{\sqrt{x^2-1}} \, dx = \ln\left|x + \sqrt{x^2-1}\right| = \operatorname{arcosh} x + c \qquad \text{für } |x| > 1$$

Ausgewälte Funktionswerte der Winkelfunktionen

$$\sin 0 = \cos \frac{\pi}{2} = 0$$

$$\sin \frac{\pi}{6} = \cos \frac{\pi}{3} = \frac{1}{2}$$

$$\sin \frac{\pi}{4} = \cos \frac{\pi}{4} = \frac{\sqrt{2}}{2}$$

$$\sin \frac{\pi}{3} = \cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$$

$$\sin \frac{\pi}{2} = \cos 0 = 1$$