

S 105 Nr. 2

$$\underline{J_2(x)} = \int_2^x \frac{1}{2} t dt = \left[\frac{1}{2} \cdot \frac{t^2}{2} \right]_2^x = \left[\frac{1}{4} t^2 \right]_2^x = \frac{1}{4} x^2 - \frac{1}{4} \cdot 2^2 = \underline{\underline{\frac{1}{4} x^2 - 1}}$$

→ Tabelle III

x	-4	-2	0	2	4	6
J ₂ (x)	3	0	-1	0	3	8

$$\underline{J_0(x)} = \int_0^x \frac{1}{2} t dt = \left[\frac{1}{2} \cdot \frac{t^2}{2} \right]_0^x = \left[\frac{1}{4} t^2 \right]_0^x = \frac{1}{4} x^2 - \frac{1}{4} \cdot 0^2 = \underline{\underline{\frac{1}{4} x^2}}$$

→ Tabelle II

x	-4	-2	0	2	4	6
J ₀ (x)	4	1	0	1	4	9

$$\underline{J_{-4}(x)} = \int_{-4}^x \frac{1}{2} t dt = \left[\frac{1}{4} t^2 \right]_{-4}^x = \frac{1}{4} x^2 - \frac{1}{4} (-4)^2 = \underline{\underline{\frac{1}{4} x^2 - 4}}$$

→ Tabelle I

x	-4	-2	0	2	4	6
J ₋₄ (x)	0	-3	-4	-3	0	5

S 105 Nr. 3

$$J_0(x) = \int_0^x f(t) dt$$

x	-1	0	1	2	3	4
J ₀ (x)	1	0	-3/4	0	3/4	0

$$\underline{J_0(-1)} = \int_0^{-1} -1 dt = \left[-t \right]_0^{-1} = -(-1) - \{-0\} = \underline{\underline{+1}}$$

J₀(0) = 0 gilt für alle Integralfunktionen

$$\begin{aligned} \underline{J_0(1)} &= \int_0^{\frac{1}{2}} -1 dt + \int_{\frac{1}{2}}^1 (2t - 2) dt = \left[-t \right]_0^{0,5} + \left[\frac{2 \cdot t^2}{2} - 2t \right]_{0,5}^1 = \\ &= -0,5 + 1 - 2 - \left\{ \left(\frac{1}{2}\right)^2 - 2 \cdot \frac{1}{2} \right\} \\ &= -0,5 + 1 - 2 - \frac{1}{4} + 1 = \underline{\underline{-\frac{3}{4}}} \end{aligned}$$

J₀(2) = J₀(1) + 3/4 = 0 Fläche von 0 bis 1 ist
-Fläche von 1 bis 2

J₀(3) und J₀(4) betrachte die orientierten Flächeninhalte