Seite 112 Nr. 1 Fig. 2

$$A(z) = \int_1^z \frac{1}{(x+1)^2}\,dx = \left[-\frac{1}{(x+1)^1}\right]_1^z = -\frac{1}{z+1} - \left\{-\frac{1}{1+1}\right\}$$

$$A(z) = -\frac{1}{z+1} + \frac{1}{2} \Rightarrow \underline{\underline{\lim_{z\to\infty} A(z) = \frac{1}{2}}}$$

Fig. 3

$$A(z) = \int_2^z e^{-\frac{1}{2}x}\,dx = \left[e^{-\frac{1}{2}x} \cdot \frac{1}{-\frac{1}{2}}\right]_2^z = \left[-2\cdot e^{-\frac{1}{2}x}\right]_2^z =$$

$$= -2\cdot e^{-\frac{1}{2}z} - \left\{-2\cdot e^{-\frac{1}{2}\cdot 2}\right\} = \underbrace{-2\cdot e^{-\frac{1}{2}z}}_{\to 0 \text{ für } z\to\infty} + 2\cdot e^{-1}$$

$$\underline{\underline{\lim_{z\to+\infty} A(z) = \frac{2}{e}}}$$

Fig. 4

$$A(z) = \int_z^1 \frac{2}{x^3}\,dx = \left[\frac{2}{x^2}\cdot\frac{1}{-2}\right]_z^1 = \left[-\frac{1}{x^2}\right]_z^1 = -\frac{1}{1} - \left\{-\frac{1}{z^2}\right\}$$

$A(z) = \frac{1}{z^2} - 1$ für $z \to 0$ strebt $\underline{\underline{A(z) \to +\infty}}$

Fig. 5

$$A(z) = \int_z^4 \frac{4}{\sqrt{x}}\,dx = \left[4\cdot\sqrt{x}\cdot\frac{1}{\frac{1}{2}}\right]_z^4 = \left[8\cdot\sqrt{x}\right]_z^4 = 8\cdot\sqrt{4} - \left\{8\cdot\sqrt{z}\right\}$$

$$A(z) = 16 - 8\sqrt{z} \Rightarrow \underline{\underline{\lim_{z\to 0} A(z) = 16}}$$