Lösung A5

$f(x) = \cancel{(x+1) \cdot e^{-(x)}} = (x+1) \cdot e^{-x}$

$f'(x) = e^{-x} + (x+1) \cdot (-e^{-x})$

$= e^{-x}(-x) = -x \cdot e^{-x}$

$f''(x) = -e^{-x} + (-x) \cdot (-e^{-x})$

$= e^{-x}(-1+x) = (x-1) \cdot e^{-x}$

$f(x) = 0 \Rightarrow N(-1 | 0)$

$f(0) = 1 \Rightarrow S_y(0 | 1)$

$\left.\begin{array}{l} f'(x) = 0 \Rightarrow x = 0 \\ f''(0) = -1 < 0 \end{array}\right\} \Rightarrow H = S_y = (0|1)$

$\left.\begin{array}{l} f''(x) = 0 \Rightarrow x = 1 \\ \lim\limits_{x \to \infty} f(x) = 0 \\ H(0|1) \end{array}\right\} W(1 | \frac{2}{e})$

$P(-1 | 0)$

$u = -1$ $\quad t: y = f'(u)(x-u) + f(u)$

$f(u) = 0$ $\quad y = e(x+1) = ex + e$

$f'(u) = e$ $\quad n: y = -\frac{1}{f'(u)}(x-u) + f(u)$

$y = -\frac{1}{e}(x+1) + 0$

$y = -\frac{1}{e}x - \frac{1}{e}$

t_1 schneidet die Achsen in

$A(-1|0)$ $\quad B(0|e)$

n_1 schneidet die Achsen in

$C(-1|0)$ $\quad D(0|-\frac{1}{e})$

$\left.\begin{array}{l} f'(1) = -\frac{1}{f'(-1)} = -\frac{1}{e} \\ f'(-1) = -\frac{1}{f'(1)} = e \end{array}\right\}$ Parallelogr. mit rechl. Winkel