S 73 Nr. 2

a) $f_a(x) = x^2 - ax$ Schnitt mit x-Achse ; $a > 0$

$\Rightarrow f_a(x) = 0 = x^2 - ax = x(x-a) \Rightarrow \underline{\underline{N_1(0|0) \vee N_2(a|0)}}$

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b) $f_a(x) = a - e^{2x} = 0 \Rightarrow e^{2x} = a \mid \ln$

$2x = \ln(a) \mid :2$

$x = \frac{\ln(a)}{2}$ $\quad \underline{\underline{N_1\left(\frac{\ln(a)}{2} \mid 0\right)}}$

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c) $f_a(x) = x^3 - ax = 0 = x(x^2 - a) = x(x - \sqrt{a})(x + \sqrt{a})$

$\underline{\underline{N_1(0|0)}}$ $\underline{\underline{N_2(\sqrt{a}|0)}}$ $\underline{\underline{N_3(-\sqrt{a}|0)}}$

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d) $f_a(x) = x^2 - 2ax + a^2 = 0$

$x_{1,2} = +1a \pm \sqrt{(1a)^2 - a^2} = a \pm 0 \Rightarrow \underline{\underline{N(a|0)}}$

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e) $f_a(x) = \frac{x^2 - a^2}{x} = 0 \mid \cdot x, \quad x \neq 0$

$\Rightarrow x^2 - a^2 = 0 \Rightarrow (x-a)(x+a) = 0 \Rightarrow \underline{\underline{N_1(a|0)}}$ $\underline{\underline{N_2(-a|0)}}$

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f) $f_a(x) = e^{\frac{x}{a}} - a = 0 \Rightarrow e^{\frac{x}{a}} = a \mid \ln$

$\frac{x}{a} = \ln(a) \mid \cdot a \Rightarrow x = a \cdot \ln(a)$

$\underline{\underline{N(a \cdot \ln(a) \mid 0)}}$