Nr. 1

$$f_a(x) = x^2 + ax \quad , a \in \mathbb{R}^+$$

$$x^2 + ax = 0$$

$$x \cdot (x + a) = 0$$

$x_1 = 0$ $\qquad$ $x + a = 0 \quad | -a$

$$x_2 = -a$$

Nr. 2

$$x^3 - 2ax^2 + a^2 x = 0$$

$$x \cdot (x^2 - 2ax + a^2) = 0$$

$x_1 = 0$ $\qquad$ $x^2 - 2ax + a^2 = 0 \quad | pq$

$$x_{1,2} = -\frac{-2a}{2} \pm \sqrt{\left(\frac{-2a}{2}\right)^2 - a^2}$$

$$a \pm \sqrt{\left(\frac{-2}{2} \cdot a\right)^2 \ldots}$$

$$(-a)^2$$

$$a \pm \sqrt{a^2 - a^2}$$

$$a \pm a - a$$

$$a \pm 0$$

$$x_{1,2} = a$$

Nr. 3

$$f_a(t) = \frac{at}{a + t^2}$$

$$\frac{at}{a + t^2} = 0 \quad | \cdot (a + t^2)$$

$$at = 0 \quad | : a \qquad a \neq 0$$

$$t = 0$$

Nr. 4

$$g_t(x) = -2tx + t^2 + 1 \quad , t \in \mathbb{R}^+$$

$$-2tx + t^2 + 1 = 0 \quad | -(t^2 + 1)$$

$$-2tx = -t^2 - 1 \quad | : -2t$$

$$x = \frac{-t^2 - 1}{-2t}$$

Nr. 5

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

$$\frac{1}{a} \cdot (x + a) \cdot e^{a-x} = 0 \quad | \cdot a$$

$$(x + a) \cdot e^{a-x} = 0$$

$x + a = 0 \quad | -a$ $\qquad$ $e^{a-x} = 0$

undefined

$$\underline{\underline{x_1 = -a}}$$