

Verknüpfungen komplementärer Funktionen (Identitäten)

Notation:

$$x = 1 - x^{\wedge}$$

Normierung:

$$x = x/X_0$$

Zentrierung:

$$x = 1/2 + x^{\ast}; \quad x^{\wedge} = 1/2 - x^{\ast}$$

Dezentrierung:

$$x^{\ast} = x - 1/2; \quad x^{\wedge} = 1/2 - x^{\ast}$$

Funktionen einer Variablen:

$$a + a^{\wedge} = 1$$

$$a - a^{\wedge} = a^2 - a^{\wedge 2} = 2a - 1$$

$$a^2 + a^{\wedge 2} = 2a^2 - 2a + 1$$

$$a^{\wedge}/a = 1/a - 1$$

$$e^a - e^{a^{\wedge}} = 2e^{1/2} \sinh(a - 1/2)$$

$$e^a + e^{a^{\wedge}} = 2e^{1/2} \cosh(a - 1/2)$$

Funktionen zweier Variablen:

$$a - b = b^{\wedge} - a^{\wedge} = -(a^{\wedge} - b^{\wedge})$$

$$(a - b) - (a^{\wedge} - b^{\wedge}) = 2(a - b)$$

$$(a - b) + (a^{\wedge} - b^{\wedge}) = 0$$

$$ab - a^{\wedge}b^{\wedge} = a + b - 1$$

$$(a - b)^2 - (a^{\wedge} - b^{\wedge})^2 = 0$$

$$(a - b)^2 + (a^{\wedge} - b^{\wedge})^2 = 2(a - b)^2$$

$$e^a - b - e^{a^{\wedge}} - b^{\wedge} = 2 \sinh(a - b)$$

$$e^a - b + e^{a^{\wedge}} - b^{\wedge} = 2 \cosh(a - b)$$

$$ae^b - a^{\wedge}e^{b^{\wedge}} = e^{1/2}(\sinh(b - 1/2) + 2(a - 1/2)\cosh(b - 1/2))$$

$$ae^b - a^{\wedge}e^{b^{\wedge}} = e^{1/2}(\cosh(b - 1/2) + 2(a - 1/2)\sinh(b - 1/2))$$

$$e^{ax} - by - e^{ax^{\wedge}} - by^{\wedge} = 2e^{(a-b)/2} \sinh(ax - by - (a-b)/2)$$

$$e^{ax} - e^{ax^{\wedge}} = 2e^{a/2} \sinh(ax - a/2)$$