

calc_decimal_example

Student Group

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aus (7) und (3)	$I_1 - I_2 - \color{blue}\{0\} = 0$	$\$ \text{quad} \$$
$\$ \text{quad} \$$	$I_1 = I_2 = I_0$	$\$ \text{quad} \$$
$\$ \text{quad} \$$	$\color{blue}\{I_1\} = \color{blue}\{I_2\} = \color{blue}\{I_0\}$	mit (8) und (9): $\$ \text{boxed}\{I_1\} = \text{frac}\{U_{\text{boxed}}\}\{R_{\text{boxed}}\}$ und (5)
$\$ \text{quad} \$$	$\text{frac}\{U_1\}\{R_1\} = \text{frac}\{U_2\}\{R_2\} = \text{frac}\{U_A\}\{R_1 + R_2\}$	Spannungsteilerformel, $I_1 = \text{const.}$
(10)	$U_2 = U_A \cdot \text{frac}\{R_2\}\{R_1 + R_2\}$	Spannungsteilerformel

II. Betrachtung der Spannungsverstärkung

aus (0)	$\color{blue}\{A_V\} = \text{frac}\{U_A\}\{U_E\}$	$\$ \text{quad} \$$
$\$ \text{quad} \$$	$A_V = \text{frac}\{U_A\}\{\color{blue}\{U_E\}\}$	mit (4): $\$ U_E = U_2 + U_D$
$\$ \text{quad} \$$	$A_V = \text{frac}\{U_A\}\{\color{blue}\{U_2 + U_D\}\}$	$\$ \text{quad} \$$
$\$ \text{quad} \$$	$A_V = \text{frac}\{U_A\}\{\color{blue}\{U_2\} + U_D\}$	mit (10): $\$ U_2 = U_A \cdot \text{frac}\{R_2\}\{R_1 + R_2\}$
$\$ \text{quad} \$$	$A_V = \text{frac}\{U_A\}\{U_A \cdot \text{frac}\{R_2\}\{R_1 + R_2\} + U_D\}$	$\$ \text{quad} \$$
$\$ \text{quad} \$$	$A_V = \text{frac}\{U_A\}\{U_A \cdot \text{frac}\{R_2\}\{R_1 + R_2\} + U_D\}$	mit (1)
$\$ \text{quad} \$$	$A_V = \text{frac}\{U_A\}\{U_A \cdot \text{frac}\{R_2\}\{R_1 + R_2\} + \color{blue}\{U_D\}\}$	mit $\$ \text{frac}\{1\}\{A_D\} \rightarrow \infty$
$\$ \text{quad} \$$	$A_V = \text{frac}\{1\}\{\text{frac}\{R_2\}\{R_1 + R_2\} + \color{blue}\{A_D\}\}$	$\$ \text{quad} \$$
$\$ \text{quad} \$$	$A_V = \text{frac}\{1\}\{\text{frac}\{R_2\}\{R_1 + R_2\} + A_D\}$	Bruch umformen

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