

calc_decimal_example

Student Group

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$\$1.\!\!\!\!\!\quad$ Calculation example for decimal value

value		2	6	5	8	,	4	7
index	i	3	2	1	0		-1	-2
place value	B^i	10^3 \$1000	10^2 \$100	10^1 \$10	10^0 \$1		10^{-1} \$0.1	10^{-2} \$0.01
digit	z_i	2	6	5	8		4	7
calculation	$z_i \cdot B^i$	2000	600	50	8		0.4	0.07
Result	$\sum_i z_i \cdot B^i$	2658,47						

[illegible]

\$II.\quad\$ Betrachtung der Spannungsverstärkung

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

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