

# rechnung\_spannungsfolger

## Student Group

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**I. Analysis of the Currents**

by (2)+(3)	$I_p = I_m = 0$
	Therefore, $I_p$ and $I_m$ are defined
by (3)+(5)	$I_o = I_m = 0$
	By this, $I_o$ is defined

**II. Analysis of the Voltage Amplification**

by (0)	$A_V = \frac{U_o}{U_i}$
	$A_V = \frac{U_o}{U_i}$
	with (4)
	$A_V = \frac{U_o}{U_o + U_D}$
	$A_V = \frac{U_o}{U_o + U_D}$
	with (1)
	$A_V = \frac{A_D \cdot U_D}{A_D \cdot U_D + U_D}$
	$A_V = \frac{A_D \cdot U_D}{A_D \cdot U_D + U_D}$
	$A_V = \frac{A_D \cdot U_D}{A_D \cdot U_D + U_D}$
	Expand with $\frac{1}{A_D \cdot U_D}$
	$A_V = \frac{A_D \cdot U_D}{A_D \cdot U_D + U_D} \cdot \frac{1}{A_D \cdot U_D} \cdot (A_D \cdot U_D + U_D) \cdot \frac{1}{A_D \cdot U_D}$
	$A_V = \frac{1}{1 + \frac{1}{A_D}}$
	$A_V = \frac{1}{1 + \frac{1}{A_D}}$
	$A_V = \frac{1}{1 + \frac{1}{A_D}}$

	with $\frac{1}{A_{\text{D}}} \xrightarrow{A_{\text{D}} \rightarrow \infty} 0$
$\$ \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \$$	$\$ \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \$$
$\$ \backslash \text{quad} \$$	$A_{\text{V}} = \frac{1}{1 + \text{color}\{\text{blue}\}\{0\}}$
	$\$ \backslash \text{quad} \$$
$\$ \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \$$	$\$ \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \$$
$\$ \backslash \text{quad} \$$	$A_{\text{V}} = \frac{1}{1} = 1$
	$\$ \backslash \text{quad} \$$
$\$ \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \$$	$\$ \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \backslash \text{quad} \$$

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