

calc_decimal_example

Student Group

First Name	Surname	Matrikel Nr.

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

[illegible]
$$\begin{aligned} & \begin{matrix} \text{value:} \\ \text{index:} \\ \text{place value:} \\ \text{digit:} \\ \text{calc.:} \\ \text{result:} \end{matrix} \\ & \begin{matrix} i \\ i \\ B^i \\ z_i \\ \sum_i z_i B^i \end{matrix} \\ & \begin{matrix} 10^3 \\ 10^2 \\ 10^1 \\ 10^0 \\ 10^{-1} \\ 10^{-2} \end{matrix} \\ & \begin{matrix} 1000 \\ 100 \\ 10 \\ 1 \\ 0.1 \\ 0.01 \end{matrix} \\ & \begin{matrix} 2000 \\ 600 \\ 50 \\ 8 \\ 0.4 \\ 0.07 \end{matrix} \\ & 2658.47 \end{aligned}$$
$$\begin{matrix} \text{\textcolor{black}{\text{value}}:} & \text{\textcolor{black}{}} & \text{\textcolor{black}{2}} & \text{\textcolor{black}{6}} & \text{\textcolor{black}{5}} & \text{\textcolor{black}{8.}} & \text{\textcolor{black}{4}} & \text{\textcolor{black}{7}} \\ \text{\textcolor{blue}{\text{index}}:} & \text{\textcolor{blue}{i}} & \text{\textcolor{blue}{3}} & \text{\textcolor{blue}{2}} & \text{\textcolor{blue}{1}} & \text{\textcolor{blue}{0}} & \text{\textcolor{blue}{-1}} & \text{\textcolor{blue}{-2}} \\ \text{\textcolor{white}{\text{place value}}:} & \text{\textcolor{white}{B^i}} & \text{\textcolor{white}{10^3}} & \text{\textcolor{white}{10^2}} & \text{\textcolor{white}{10^1}} & \text{\textcolor{white}{10^0}} & \text{\textcolor{white}{10^{-1}}} & \text{\textcolor{white}{10^{-2}}} \\ \text{\textcolor{white}{\text{digit}}:} & \text{\textcolor{white}{z_i}} & \text{\textcolor{white}{2}} & \text{\textcolor{white}{6}} & \text{\textcolor{white}{5}} & \text{\textcolor{white}{8}} & \text{\textcolor{white}{4}} & \text{\textcolor{white}{7}} \\ \text{\textcolor{white}{\text{calc}}:} & \text{\textcolor{white}{z_i \cdot B^i}} & \text{\textcolor{white}{2000}} & \text{\textcolor{white}{600}} & \text{\textcolor{white}{50}} & \text{\textcolor{white}{8}} & \text{\textcolor{white}{0.4}} & \text{\textcolor{white}{0.07}} \\ \text{\textcolor{white}{\text{result}}:} & \text{\textcolor{white}{\sum_i z_i \cdot B^i}} & \text{\textcolor{white}{2658.47}} \end{matrix}$$
$$\begin{matrix} \begin{matrix} \text{value} \end{matrix} & \begin{matrix} \end{matrix} & \begin{matrix} \end{matrix} \end{matrix}$$

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\color{black}{2} & \color{black}{6} & \color{black}{5} & \color{black}{8.} & \color{black}{4} &
\color{black}{7} \\ \color{black}{\text{index}:} & \color{black}{i} & \color{black}{3} &
\color{black}{2} & \color{black}{1} & \color{black}{0} & \color{black}{-1} & \color{black}{-2} \\
\color{blue}{\text{place value}:} & \color{blue}{B^i} & \color{blue}{10^3} & \color{blue}
\color{blue}{10^2} & \color{blue}{10^1} & \color{blue}{10^0} & \color{blue}{10^{-1}} & \color{blue}
\color{blue}{10^{-2}} \\ \color{white}{} & \color{white}{} & \color{white}{1000} & \color{white}{100} &
\color{white}{10} & \color{white}{1} & \color{white}{0.1} & \color{white}{0.01} \\
\color{white}{\text{digit}:} & \color{white}{z_i} & \color{white}{2} & \color{white}{6} &
\color{white}{5} & \color{white}{8} & \color{white}{4} & \color{white}{7} \\
\color{white}{\text{calc}.:} & \color{white}{z_i \cdot B^i} & \color{white}{2000} &
\color{white}{600} & \color{white}{50} & \color{white}{8} & \color{white}{0.4} &
\color{white}{0.07} \\ \color{white}{\text{result}:} & \color{white}{\sum_i z_i \cdot B^i} & & &
\color{white}{2658.47} \\ \end{smallmatrix} \end{align*}

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\begin{align*} \begin{smallmatrix} \color{white}{\text{value}:} & \color{white}{} &
\color{white}{2} & \color{white}{6} & \color{white}{5} & \color{white}{8.} & \color{white}{4} &
\color{white}{7} \\ \color{white}{\text{index}:} & \color{white}{i} & \color{white}{3} &
\color{white}{2} & \color{white}{1} & \color{white}{0} & \color{white}{-1} & \color{white}{-2} \\
\color{white}{\text{place value}:} & \color{white}{B^i} & \color{white}{10^3} &
\color{white}{10^2} & \color{white}{10^1} & \color{white}{10^0} & \color{white}{10^{-1}} &
\color{white}{10^{-2}} \\ \color{white}{} & \color{white}{} & \color{white}{1000} &
\color{white}{100} & \color{white}{10} & \color{white}{1} & \color{white}{0.1} &
\color{white}{0.01} \\ \color{white}{\text{digit}:} & \color{white}{z_i} & \color{white}{2} &
\color{white}{6} & \color{white}{5} & \color{white}{8} & \color{white}{4} & \color{white}{7} \\
\color{white}{\text{calc}.:} & \color{white}{z_i \cdot B^i} & \color{white}{2000} &
\color{white}{600} & \color{white}{50} & \color{white}{8} & \color{white}{0.4} &
\color{white}{0.07} \\ \color{white}{\text{result}:} & \color{white}{\sum_i z_i \cdot B^i} & & &
\color{white}{2658.47} \\ \end{smallmatrix} \end{align*}

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\begin{align*} \begin{smallmatrix} \color{blue}{\text{value}:} & \color{blue}{} & \color{blue}
\color{blue}{2} & \color{blue}{6} & \color{blue}{5} & \color{blue}{8.} & \color{blue}{4} & \color{blue}
\color{blue}{7} \\ \color{blue}{\text{index}:} & \color{blue}{i} & \color{blue}{3} & \color{blue}{2} &
\color{blue}{1} & \color{blue}{0} & \color{blue}{-1} & \color{blue}{-2} \\
\color{blue}{\text{place value}:} & \color{blue}{B^i} & \color{blue}{10^3} & \color{blue}{10^2} &
\color{blue}{10^1} & \color{blue}{10^0} & \color{blue}{10^{-1}} & \color{blue}{10^{-2}} \\
\color{blue}{} & \color{blue}{} & \color{blue}{1000} & \color{blue}{100} & \color{blue}{10} &
\color{blue}{1} & \color{blue}{0.1} & \color{blue}{0.01} \\ \color{blue}{\text{digit}:} &
\color{blue}{z_i} & \color{blue}{2} & \color{blue}{6} & \color{blue}{5} & \color{blue}{8} &
\color{blue}{4} & \color{blue}{7} \\
\color{blue}{\text{calc}.:} & \color{blue}{z_i \cdot B^i} & \color{blue}{2000} & \color{blue}
\color{blue}{600} & \color{blue}{50} & \color{blue}{8} & \color{blue}{0.4} & \color{blue}
\color{blue}{0.07} \\ \color{blue}{\text{result}:} & \color{blue}{\sum_i z_i \cdot B^i} & & &
& & \color{blue}{2658.47} \\ \end{smallmatrix} \end{align*}

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```

\begin{align*} \begin{smallmatrix} \color{black}{\text{value}:} & \color{black}{} &
\color{black}{2} & \color{black}{6} & \color{black}{5} & \color{black}{8.} & \color{black}{4} &
\color{black}{7} \\ \color{black}{\text{index}:} & \color{black}{i} & \color{black}{3} &
\color{black}{2} & \color{black}{1} & \color{black}{0} & \color{black}{-1} & \color{black}{-2} \\
\color{black}{\text{place value}:} & \color{black}{B^i} & \color{black}{10^3} &
\color{black}{10^2} & \color{black}{10^1} & \color{black}{10^0} & \color{black}{10^{-1}} &
\color{black}{10^{-2}} \\ \end{smallmatrix} \end{align*}

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$$\begin{aligned} & \{10^{-2}\} \setminus \{ \} \& \{ \} \& \{1000\} \& \\ & \{100\} \& \{10\} \& \{1\} \& \{0.1\} \& \\ & \{0.01\} \setminus \{\text{digit}:\} \& \{z_i\} \& \{2\} \& \\ & \{6\} \& \{5\} \& \{8\} \& \{4\} \& \{7\} \setminus \\ & \{\text{calc}.\} \& \{z_i \cdot B^i\} \& \{2000\} \& \\ & \{600\} \& \{50\} \& \{8\} \& \{0.4\} \& \\ & \{0.07\} \setminus \{\text{result}:\} \& \{\sum_i z_i \cdot B^i\} \& \& \\ & \{2658.47\} \setminus \end{aligned} \end{smallmatrix} \end{align*}$$
[illegible]

\$II.\quad\$ Betrachtung der Spannungsverstärkung

[illegible]

$A_V = \frac{1}{R_1 + R_2} + \frac{1}{A_D}$	$\text{mit } \frac{1}{A_D} \rightarrow \infty \quad 0$
$A_V = \frac{1}{R_1 + R_2}$	Bruch umformen
$A_V = \frac{R_1 + R_2}{R_1 + R_2} \cdot \frac{1}{R_1 + R_2}$	
$A_V = \frac{R_1 + R_2}{R_1 + R_2} \cdot \frac{1}{R_1 + R_2}$	

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