

calc_logic_example

Student Group

First Name	Surname	Matrikel Nr.

Table of Contents

At first we will switch the representation to the following:

```
\begin{align*} \begin{array}{ll} \overline{a \lor (b \land (\bar{a} \lor c) \land 1) \lor a} & & \\ \color{white}{\overline{ab}} & \quad \quad \quad & \\ \quad \quad \quad & \quad \quad \quad & \end{array} \end{align*}
```

At first we will switch the representation to the following:

```
\begin{align*} \begin{array}{ll} /a + (b \cdot (/a + c) \cdot 1) + a & & \color{white}{\overline{ab}} \\ \quad \quad \quad & \quad \quad \quad & \end{array} \end{align*}
```

1. $\color{blue}{\text{Neutral Element}}$

```
\begin{align*} \begin{array}{ll} /a + (b \cdot (/a + c) \color{blue}{\cdot 1}) + a & & \\ \color{white}{\overline{ab}} & \quad \quad \quad & \\ \quad \quad \quad & \quad \quad \quad & \end{array} \end{align*}
```

1. $\color{blue}{\text{Neutral Element}}$

```
\begin{align*} \begin{array}{ll} /a + (b \cdot (/a + c) \quad \color{blue}{\cdot 1}) + a & & \\ \color{white}{\overline{ab}} & \quad \quad \quad & \\ \quad \quad \quad & \quad \quad \quad & \end{array} \end{align*}
```

2. $\color{blue}{\text{Commutative Law}}$

```
\begin{align*} \begin{array}{ll} /a + \color{blue}{(b \cdot (/a + c) \quad \color{blue}{\cdot 1}) + a} & & \\ \color{white}{\overline{ab}} & \quad \quad \quad & \\ \quad \quad \quad & \quad \quad \quad & \end{array} \end{align*}
```

2. $\color{blue}{\text{Commutative Law}}$

```
\begin{align*} \begin{array}{ll} /a + a + (b \cdot (/a + c) \quad \color{blue}{\cdot 1}) & & \color{white}{\overline{ab}} \\ \quad \quad \quad & \quad \quad \quad & \end{array} \end{align*}
```

3. $\color{blue}{\text{Idempotence}}$

$$\begin{array}{ll} \textcolor{blue}{a + a} + (b \cdot (a + c) \quad \& \\ \textcolor{white}{\overline{ab}} \quad \& \\ \quad \quad \quad \& \end{array}$$

3. $\text{\color{blue}\text{\text{Idempotence}}}$

$$\frac{a}{\overline{ab}} \equiv \frac{a}{a+b} \pmod{ab}$$

4. $\text{\color{blue}}\{\text{\texttt{\text{Distributive Law}}}\}$

$$\begin{array}{ll} \text{\textcolor{blue}{b} \cdot (a + c)} & \text{\textcolor{white}{\overline{ab}}} \\ \text{\quad\quad\quad\quad\quad\quad\quad} & \text{\quad\quad\quad\quad\quad\quad\quad} \end{array}$$

4. $\text{\color{blue}}\{\text{\texttt{\text{Distributive Law}}}\}$

$$\begin{array}{l} \frac{\overline{ab}}{(a + (b \cdot a) + (b \cdot c))} \\ \quad \quad \quad \end{array}$$

From: <https://wiki.mexle.te.hs-heilbronn.de/> - **MEXLE Wiki**

Permanent link:
[https://wiki.mexle.te.hs-heilbronn.de/introduction to digital systems/calc logic example?rev=1631828378](https://wiki.mexle.te.hs-heilbronn.de/introduction%20to%20digital%20systems/calc%20logic%20example?rev=1631828378)

Last update: **2021/09/16 23:39**

