

calc_logic_example

Student Group

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example for a simplification with the rule for boolean algebra

$$\overline{a \vee (b \wedge (\bar{a} \vee c) \wedge 1) \vee a} \quad \& \quad \quad \& \quad \quad \quad \& \quad \quad \quad \end{array} \end{align*}$$

example for a simplification with the rule for boolean algebra

$$\overline{a \vee (b \wedge (\bar{a} \vee c) \wedge 1) \vee a} \quad \& \quad \quad \quad \& \quad \quad \quad$$

example for a simplification with the rule for boolean algebra

[illegible]

example for a simplification with the rule for boolean algebra

[illegible]

example for a simplification with the rule for boolean algebra

[illegible]

example for a simplification with the rule for boolean algebra

[illegible]

example for a simplification with the rule for boolean algebra

$$\begin{array}{ll} \overline{a \vee (b \wedge \bar{a} \vee c) \wedge 1} \vee a & \\ \quad \quad \quad \& \quad \quad \quad \end{array}$$

example for a simplification with the rule for boolean algebra

$$\begin{array}{ll} \overline{a \vee (b \wedge (\bar{a} \vee c) \wedge 1) \vee a} & \\ \quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad & \\ \quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad & \end{array}$$

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

[illegible]

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

$$\begin{array}{ll} (a \quad \text{enspace} \backslash: + (b \cdot (a + c) \quad \backslash;)) & \& \\ \overline{ab} & \& \\ & \& \end{array}$$

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

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

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

$$\begin{array}{ll} \text{\color{white}\overline{ab}} & \\ \quad\quad\quad\quad\quad & \end{array}$$

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