

$$\begin{aligned}
A \vee \text{true} &\equiv \text{true} \\
A \vee \text{false} &\equiv A \\
A \rightarrow \text{true} &\equiv \text{true} \\
A \rightarrow \text{false} &\equiv \neg A \\
A \leftrightarrow \text{true} &\equiv A \\
A \leftrightarrow \text{false} &\equiv \neg A
\end{aligned}$$

$$\begin{aligned}
A \wedge \text{true} &\equiv A \\
A \wedge \text{false} &\equiv \text{false} \\
\text{true} \rightarrow A &\equiv A \\
\text{false} \rightarrow A &\equiv \text{true} \\
A \oplus \text{true} &\equiv \neg A \\
A \oplus \text{false} &\equiv A
\end{aligned}$$

$$\begin{aligned}
A &\equiv \neg \neg A \\
A &\equiv A \wedge A \\
A \vee \neg A &\equiv \text{true} \\
A \rightarrow A &\equiv \text{true} \\
A \leftrightarrow A &\equiv \text{true} \\
\neg A &\equiv A \uparrow A
\end{aligned}$$

$$\begin{aligned}
A &\equiv A \vee A \\
A \wedge \neg A &\equiv \text{false} \\
A \oplus A &\equiv \text{false} \\
\neg A &\equiv A \downarrow A
\end{aligned}$$

$$\begin{aligned}
A \vee B &\equiv B \vee A \\
A \leftrightarrow B &\equiv B \leftrightarrow A \\
A \uparrow B &\equiv B \uparrow A \\
A \rightarrow B &\equiv \neg B \rightarrow \neg A
\end{aligned}$$

$$\begin{aligned}
A \wedge B &\equiv B \wedge A \\
A \oplus B &\equiv B \oplus A \\
A \downarrow B &\equiv B \downarrow A
\end{aligned}$$

$$\begin{aligned}
A \vee (B \vee C) &\equiv (A \vee B) \vee C \\
A \leftrightarrow (B \leftrightarrow C) &\equiv (A \leftrightarrow B) \leftrightarrow C \\
A \uparrow (B \uparrow C) &\equiv (A \uparrow B) \uparrow C
\end{aligned}$$

$$\begin{aligned}
A \wedge (B \wedge C) &\equiv (A \wedge B) \wedge C \\
A \oplus (B \oplus C) &\equiv (A \oplus B) \oplus C \\
A \downarrow (B \downarrow C) &\equiv (A \downarrow B) \downarrow C
\end{aligned}$$

$$\begin{aligned}
A \vee (B \wedge C) &\equiv (A \vee B) \wedge (A \vee C) \\
A \wedge (A \vee B) &\equiv A
\end{aligned}$$

$$\begin{aligned}
A \wedge (B \vee C) &\equiv (A \wedge B) \vee (A \wedge C) \\
A \vee (A \wedge B) &\equiv A
\end{aligned}$$

$$\begin{aligned}
A \leftrightarrow B &\equiv (A \rightarrow B) \wedge (B \rightarrow A) \\
A \rightarrow B &\equiv \neg A \vee B \\
A \vee B &\equiv \neg(\neg A \wedge \neg B) \\
A \vee B &\equiv \neg A \rightarrow B
\end{aligned}$$

$$\begin{aligned}
A \oplus B &\equiv \neg(A \rightarrow B) \vee \neg(B \rightarrow A) \\
A \rightarrow B &\equiv \neg(A \wedge \neg B) \\
A \wedge B &\equiv \neg(\neg A \vee \neg B) \\
A \wedge B &\equiv \neg(A \rightarrow \neg B)
\end{aligned}$$

$$\begin{aligned}
A \rightarrow B &\equiv A \leftrightarrow (A \wedge B) \\
A \wedge B &\equiv (A \leftrightarrow B) \leftrightarrow (A \vee B)
\end{aligned}$$

$$\begin{aligned}
A \rightarrow B &\equiv B \leftrightarrow (A \vee B) \\
A \leftrightarrow B &\equiv (A \vee B) \rightarrow (A \wedge B)
\end{aligned}$$