

Status Beendet**Begonnen** Sonntag, 23. März 2025, 17:37**Abgeschlossen** Sonntag, 23. März 2025, 17:56**Dauer** 19 Minuten 5 Sekunden**Bewertung** 9,67 von 10,00 (96,67%)**Frage 1**

Richtig

Erreichte Punkte 1,00 von 1,00

How many interpretations of $\{a \leftarrow 0, a \leftarrow 1\} \times \{b \leftarrow 0, b \leftarrow 1\} \times \{c \leftarrow 0, c \leftarrow 1\}$ satisfy the formula $(\neg a \wedge \neg b) \rightarrow c$?

(Your answer should be a single integer without padding)

Antwort: 

Frage 2

Teilweise richtig

Erreichte Punkte 0,67 von 1,00

Let A and B be two propositional formulas. Which formula(s) is(are) a semantical consequence of $(\neg A \rightarrow A) \vee \neg B$?

(There is at least one correct answer, but there could be several.)

- ☒ a. $(B \wedge A) \rightarrow B$ 
- ☐ b. $(A \rightarrow B) \wedge \neg B$
- ☒ c. $(\neg B \rightarrow \neg B) \vee A$ 
- ☐ d. $(\neg B \rightarrow B) \rightarrow A$

The answer is partially correct.

Sie haben 2 richtig ausgewählt.

Frage 3

Richtig

Erreichte Punkte 1,00 von 1,00

Let A and B be propositional formula. Which of the following statements hold?

- ☐ a. $A \models B$ iff $A \vee B$ is valid
- ☒ b. $A \models B$ iff $\neg(A \rightarrow B)$ is unsatisfiable 
- ☐ c. $A \models B$ iff $A \rightarrow \neg B$ is valid
- ☐ d. $A \models B$ iff $\neg A \vee B$ is unsatisfiable

Your answer is correct.

Frage 4

Richtig

Erreichte Punkte 1,00 von 1,00

Let F be a WFF such that $F = a \wedge b \wedge c$. What is the resulting formula after replacing b by $c \vee \neg c$ and applying the syntactic simplifying rules?

- ☐ a. $a \vee c$
- ☐ b. $c \wedge c$
- ☒ c. $a \wedge c$ ✓
- ☐ d. $a \wedge b \wedge (c \vee \neg c)$
- ☐ e. $\perp$

Your answer is correct.

Frage 5

Richtig

Erreichte Punkte 1,00 von 1,00

Which of those sets of labeled formulas has a closed tableau derivation?

- ☒ a. $\mathbf{f}: \neg B, \mathbf{f}: A \vee B$ ✓
- ☐ b. $\mathbf{t}: \neg B, \mathbf{f}: A \wedge B$
- ☐ c. $\mathbf{f}: B, \mathbf{t}: A \rightarrow B$
- ☐ d. $\mathbf{f}: B, \mathbf{f}: A \vee B$

Your answer is correct.

Frage 6

Richtig

Erreichte Punkte 1,00 von 1,00

Let

 W : The weather is good. B : Anna goes to uni by bike. T : Anna arrives in uni on time.

Which is the formalization of the sentence

'Anna does not go to uni by bike if the weather is bad.'?

- ☐ a. $B \rightarrow \neg W$
- ☒ b. $\neg W \rightarrow \neg B$ ✓
- ☐ c. $W \rightarrow B$
- ☐ d. $B \wedge \neg W$

The answer is correct.

Frage 7

Richtig

Erreichte Punkte 1,00 von 1,00

Given the entailment $P \rightarrow Q, \neg Q \vee (R \rightarrow S), P \vee R \models Q \rightarrow \neg S$, fill in the blanks to make the statements correct.The tableau $t : P \rightarrow Q, t : \neg Q \vee (R \rightarrow S), t : P \vee R, f : Q \rightarrow \neg S$ does not close ✓, which means that the entailment isfalse ✓.There is an ✓ interpretation that makes $P \rightarrow Q, \neg Q \vee (R \rightarrow S), P \vee R$ true and $Q \rightarrow \neg S$ false, which means that the entailment is false ✓.closesdoes not closetruefalsenoan

Your answer is correct.

Frage 8

Richtig

Erreichte Punkte 1,00 von 1,00

What is the minimum number of branches in the tableau derivation of $p \wedge q, s \rightarrow \neg q, s \vee \neg r \models \neg(r \vee \neg p)$ have?

(Your answer should be a single integer without padding)

Antwort: 4 ✓

Frage 9

Richtig

Erreichte Punkte 1,00 von 1,00

Provide an interpretation that falsifies the following statement:

$$\neg((a \wedge b) \vee a) \wedge (a \wedge \neg d) \models (a \rightarrow (c \wedge c)) \vee \neg b$$

(interpretations should be written as a sequence of $\{0,1\}$ separated by commas representing the assignment of variables (a, b, c, d) in alphabetical order. For examples, $(\neg(a: 0, b: 1, c: 0, d: 1))$ would be written "0,1,0,1")

Antwort: 1,1,0,0



Frage 10

Richtig

Erreichte Punkte 1,00 von 1,00

What is the result of the resolution rule applied on the clauses $(\neg a \vee b \vee c)$ and $(\neg b \vee \neg d)$?

- ☐ a. $(\neg a \vee \neg d)$
- ☐ b. $(c \vee \neg d)$
- ☒ c. $(\neg a \vee c \vee \neg d)$ ✓
- ☐ d. $(\neg a \vee c)$
- ☐ e. $(\neg a \vee \neg b \vee c \vee \neg d)$

Your answer is correct.