



## SAT2Q (Quiz 2)

Started on	Monday, 23 October 2023, 7:15 PM
State	Finished
Completed on	Monday, 23 October 2023, 7:30 PM
Time taken	15 mins 1 sec
Grade	3.67 out of 5.00 (73.33%)

## Question 1

Partially correct

Mark 0.67 out of 2.00

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Which of the following formulas are subformulas of

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

Select one or more:

- ☐ 1.  $(a \rightarrow \neg(\neg b \vee \neg\neg c)) \vee (a \wedge b \vee c) \wedge d?$
- ☒ 2.  $(a \rightarrow \neg(\neg b \vee \neg\neg c)) \wedge d?$  ✗
- ☒ 3.  $b \vee c$  ✗
- ☒ 4.  $a \wedge b$  ✓
- ☒ 5.  $a \wedge b \vee c$  ✓

Die Antwort ist teilweise richtig.

You have selected too many options.

The correct answers are:  $a \wedge b$ ,  $a \wedge b \vee c$ ,  $(a \rightarrow \neg(\neg b \vee \neg\neg c)) \vee (a \wedge b \vee c) \wedge d?$ 

## Question 2

Correct

Mark 2.00 out of 2.00

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Which of the following statements hold?

Select one or more:

- ☐ 1.  $\neg(a \wedge \neg a) \Leftrightarrow \perp$
- ☒ 2.  $(a \wedge c) \vee (b \wedge a \wedge c) \Leftrightarrow a \wedge c$  ✓
- ☐ 3.  $a \vee (b \wedge c) \Leftrightarrow (a \wedge b) \vee (a \wedge c)$
- ☒ 4.  $\neg\neg b \Leftrightarrow \neg\neg(b \wedge \neg\perp)$  ✓

Die Antwort ist richtig.

The correct answers are:  $\neg\neg b \Leftrightarrow \neg\neg(b \wedge \neg\perp)$ ,  $(a \wedge c) \vee (b \wedge a \wedge c) \Leftrightarrow a \wedge c$ 

## Question 3

Correct

Mark 1.00 out of 1.00

[Flag question](#)Given formulas  $\psi_1$ ,  $\psi_2$ ,  $\psi_3$  over variables  $x$ ,  $y$ ,  $z$  as defined in the truth table below.

$x$	$y$	$z$	$\psi_1$	$\psi_2$	$\psi_3$
0	0	0	0	1	0
0	0	1	0	1	0
0	1	0	0	1	0
0	1	1	0	1	0
1	0	0	0	1	0
1	0	1	0	1	0
1	1	0	0	1	0
1	1	1	1	1	0

Which statements hold?

Select one or more:

- ☐ 1.  $\psi_1$  is unsatisfiable.
- ☒ 2.  $\psi_2 \wedge \psi_3$  is unsatisfiable. ✓
- ☒ 3.  $\neg\psi_3$  is valid. ✓

Die Antwort ist richtig.

The correct answers are:  $\neg\psi_3$  is valid.,  $\psi_2 \wedge \psi_3$  is unsatisfiable.