# SMT2Q

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|---|---|
| **Started on** | Monday, 15 January 2024, 7:16 PM |
| **State** | Finished |
| **Completed on** | Monday, 15 January 2024, 7:31 PM |
| **Time taken** | 14 mins 56 secs |
| **Grade** | **5.00** out of 5.00 (**100%**) |

**Question 1**

Correct

Mark 1.00 out of 1.00

Flag question

The validity of the formula P → S can also be proven by showing that

Select one or more:

- a. P ∧ ¬S is unsatisfiable ✔
- b. ¬(P → S) is unsatisfiable ✔
- c. (P ∨ S) is unsatisfiable
- d. (P ∨ S) is satisfiable
- e. P ∧ ¬S is satisfiable

Your answer is correct.

The correct answers are: P ∧ ¬S is unsatisfiable, ¬(P → S) is unsatisfiable

**Question 2**

Correct

Mark 2.00 out of 2.00

Flag question

Given the following conjunction of inequalities in the reals

$$x + y - z \leq 2 \ \wedge \ x - y + z \leq 3 \ \wedge \ -x + y + z \leq 4$$

During the application of the Fourier-Motzkin Procedure we isolate and eliminate the variable 'z' next.

Which formulas do we obtain after eliminating 'z' (also consider intermediate results)?

Select one or more:

- $2y \leq 5 \ \wedge \ 2x \leq 4$
- $x - 2 \leq 3 \ \wedge \ y - 2 \leq 4 - y$
- $x + y - 2 \leq 3 + x - y \ \wedge \ x + y - 2 \leq 2 - x + y$
- $2x \leq 5 \ \wedge \ 2y \leq 6$ ✔
- $y - 2 \leq 3 - y \ \wedge \ x - 2 \leq 2 - x$
- $x + y - 2 \leq 3 - x + y \ \wedge \ x + y - 2 \leq 4 + x - y$ ✔

Your answer is correct.

The correct answers are: $x + y - 2 \leq 3 - x + y \ \wedge \ x + y - 2 \leq 4 + x - y$, $2x \leq 5 \ \wedge \ 2y \leq 6$

**Question 3**

Correct

Mark 2.00 out of 2.00

Flag question

Apply the congruence closure algorithm to the following formula.

$a = b \wedge c = d \wedge u = g(a, c) \wedge v = g(a, d) \wedge d = h(u, b) \wedge e = h(v, a)$

Which partitions (equivalence relations) of the variables can occur during the execution of the congruence closure algorithm?

Select one or more:

- [ a | b | c d | e | u | v ] ✔
- [ a b | c d e | u v ] ✔
- [ a | b | c | d | e | u v ]
- [ a b | c d | e | u | v ] ✔
- [ a b | c d e | u | v ]
- [ a | b | c d e | u v ]

Your answer is correct.

The correct answers are: [ a b | c d | e | u | v ], [ a | b | c d | e | u | v ], [ a b | c d e | u v ]

Finish review