CS433 Q 1: Which of the following are propositional formulas?

☐ (p ∨ q

☐ p

☐ (¬p | = q)

☐ q¬p

Answer

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CS433 Q 1: Which of the following are propositional formulas?

You have answered the following:

✔ (p ∨ q (You are incorrect)
✔ p (You are correct)
✘ (¬p | = q) (You are correct)
✘ q¬p (You are correct)

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CS433 Q 2: Which of the following are valid formulas?

- ☐ ∃x. (⊥)
- ☐ y > 10 ⇒ ∀x. (y > 0)
- ☐ x > 0 ⇒ x > 10
- ☐ x < 10 ⊕ x ≥ 10

Answer

Note: please be careful before submitting the answer. You will not be able to change the answers.

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CS433 Q 2: Which of the following are valid formulas?

You have answered the following:

✘ $\exists x. (\bot)$ (You are correct)
✔ $y > 10 \Rightarrow \forall x. (y > 0)$ (You are correct)
✘ $x > 0 \Rightarrow x > 10$ (You are correct)
✔ $x < 10 \oplus x \geq 10$ (You are correct)

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CS433 Q 3: Which of the following formulas are in CNF?

☐ ¬(p ∧ q)

☐ (p ∧ q) ∧ (¬p ∧ q)

☐ (p ∨ q) ∨ (¬p ∨ q)

☐ (p ∨ q) ∧ (¬p ∨ q)

Answer

Note: please be careful before submitting the answer. You will not be able to change the answers.

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CS433 Q 3: Which of the following formulas are in CNF?

You have answered the following:

✘ ¬(p ∧ q) (You are correct)
✔ (p ∧ q) ∧ (¬p ∧ q) (You are correct)
✘ (p ∨ q) ∨ (¬p ∨ q) (You are incorrect)
✔ (p ∨ q) ∧ (¬p ∨ q) (You are correct)

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CS433 Q 4: Which of the following sentences are true about Tseitin's encoding and CNF?

- [ ] Ternary clauses must have exactly three literals.

- [ ] Tseitin's encoding causes quadratic blow up in formula size.

- [ ] Tseitin's encoding causes linear blow up in formula size.

- [ ] Ternary clauses must have exactly two literals.

Answer

Note: please be careful before submitting the answer. You will not be able to change the answers.

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CS433 Q 4: Which of the following sentences are true about Tseitin's encoding and CNF?

You have answered the following:

✗ Ternary clauses must have exactly three literals. (You are incorrect)

✗ Tseitin's encoding causes quadratic blow up in formula size. (You are correct)

✔ Tseitin's encoding causes linear blow up in formula size. (You are correct)

✗ Ternary clauses must have exactly two literals. (You are correct)

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