Logic Questions

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Question for Propositional Logic

▶ The best combination of the six important players in the volleyball team (1, 3, 4, 6, 9, 12) should follow the following rules:

  ▶ Players 4 and 6 need to play together.

  ▶ Player 3 does not play the game if and only if player 1 does not play

  ▶ Either player 3 or player 6 should appear on the court, and they can not appear at the same time.

  ▶ If players 9 and 12 are on the court, then player 4 must be on the court.

  If players 1 and 12 need to play at the same time in one game, who of the other 4 players should play?

  (1) Please use propositional logic to represent the above statement.

  (2) Convert them into a CNF.

  (3) Apply the DPLL algorithm to derive which players should be on the court.

Question for First-Order Logic

▶ Anyone who passes the AI exam and wins a prize is happy.

▶ Anyone willing to learn or lucky can pass all the exams.

▶ Any lucky person can win a prize.

▶ Zhansan is not willing to learn but he is lucky.

Please use First-Order logic to represent the above statements.