Assignment 1

Due on 2018-08-14, 23:59 IST.

Assignment 1

Name: [Student's Name]

Instructions:

You play Connect Four as the first player. Your task is to ensure that you win on the first try. If you lose your turn, you may move an empty chairboard (but not both). Pick the correct option:

- Player 1 can force a win
- Player 2 can force a win
- Both players can force a win
- Neither player can force a win

- Choose the correct answer:
  - 1 point
  - 1 point
  - 1 point
  - 1 point

- No, the player is incorrect.

Answer:

- Player 2 can force a win

Explanation:

- Player 2 can force a win

- The player is incorrect.

- Correct Answer:
  - Player 2 can force a win

- Nothing can be said about

- No, the player is incorrect.

- Take a heap of 4 from the other. At the start, there is only one heap and split it into two non-empty heaps. The game ends when any of the heap can no longer be further split. Does this mean Player 2 can always force a win, which of the following statements about ‘a’ are correct?
  - a is a multiple of 3
  - b is a multiple of 3
  - c is odd
  - d is odd

- No, the player is incorrect.

Answer:

- Nothing can be said about

- No, the player is incorrect.

- Which of the following games are impartial games?
  - Connect Four
  - Checkers
  - Noughts and Crosses
  - Chess

- No, the player is incorrect.

Answer:

- Checkers

- There are three boxes, initially, each box contains some objects, and the other contains some stones. Each such pile is denoted by (n, m), where n = p and q = p. Two boxes for each move consists of removing one of the boxes, and dividing the contents of the other by the contents of the box with at least one stone in it. Is there a unique winning position, hence, no one player can win? Find out.

- No, the player is incorrect.

Answer:

- No, the player is incorrect.

- There are three heaps in a game of NIM consisting of 13, 12 and 10 objects. Select the correct choice.
  - This is an N-position
  - This is a P-position
  - This is neither an N nor a P-position

- No, the player is incorrect.

Answer:

- This is a P-position

- Which of the following statements is true?
  - A player can choose either as he wishes
  - A player can only choose a stone of the opponent
  - A player can only choose a stone of the opponent
  - No, the player is incorrect.

Answer:

- This is a P-position

- There are three heaps in a game of NIM consisting of 13, 12 and 8 objects. Select the correct choice.
  - This is an N-position
  - This is a N-position
  - No, the player is incorrect.

Answer:

- This is an N-position

- Which of the following statements are true?
  - A player can choose either as he wishes
  - A player can only choose a stone of the opponent
  - No, the player is incorrect.

Answer:

- No, the player is incorrect.

- The following game is played: There are three players. Player 1 picks a number. Player 2 picks a number different to that of player 1. Player 3 picks a number which is different to that of player 1 and 2. The player with the lowest number wins. This game is repeated for 3 more turns. No, the player is incorrect.

Answer:

- No, the player is incorrect.

- There are three heaps in a game of NIM consisting of 13, 12 and 10 objects. Select the correct choice.
  - This is an N-position