

UNIVERSITY OF CALIFORNIA, BERKELEY

DEPARTMENT OF STATISTICS

STAT-155: Game Theory

Fall 2013

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Assignment # 2

Date Given: September 16, 2013 (Monday)
Date Due: September 23, 2013 (Monday)

Total Points: 20

1. Consider the following Combinatorial Game

- The game starts with 0 chips on the board.
- There are two players, namely, Players I and II who alternate their moves.
- At each move a player can add 1, 2, 4, 5 chips from the board.
- The game ends as soon as the number of chips on the board is 31 or more and the last player to make a move is the winner.

- (a) For the above game find the P and N positions.
- (b) Which player has a winning strategy?
- (c) Who will win if we continue the game till the number of chips on the board is 347 or more?

2. Consider a *Game of Chomp* with a chocolate bar of $m \times n$ chocolate squares.

- (a) Find all P and N positions when $m = 2$ and $n = 3$.
- (b) Can you give a winning strategy for Player-I for this 2×3 chomp?