

ECE 341 - Homework #1

Monte-Carlo & Enumeration

Monte-Carlo

1) In 7-card stud poker, each player is dealt 7 cards. The best 5 cards constitutes your hand. Determine using a Monte-Carlo simulation the odds of being dealt the following hands in 7-card stud poker:

- 4-of-a-Kind
- Full House
- Flush
- 3-of-a-Kind

2) Determine the probability of getting the following dice combinations when eight 6-sided dice ($8d6$) using a Monte-Carlo simulation:

- 5-of-a-kind (xxxxx abc) where (abc) can be any value other than x (could all be the same)
- Two tripples (xxx yyy ab) or (xxx yyy aa)

3) Player A and B are playhing a game of dice

- Player A rolls a 10-sided die (d_{10})
- Player B rolls two 6-sided dice ($2d6$)

The highest score wins (A wins on ties). Determine the odds that player A will win this game using a Monte Carlo simulation.

Enumeration

4) Using enumeration, determing the odds of getting the following dice combinations when rolling eight 6-sided dice ($8d6$):

- 5-of-a-kind (xxxxx abc) where (abc) can be any value other than x (could all be the same)
- Two tripples (xxx yyy ab) or (xxx yyy aa)

5) Player A and B are playhing a game of dice

- Player A rolls a 10-sided die (d_{10})
- Player B rolls two 6-sided dice ($2d6$)

The highest score wins (A wins on ties). Determine the odds that player A will win this game using enumeration.