ECE 341 - Homework #1

Tree Diagrams and Enumeration. Summer 2024

1) Two teams, A and B, are playing a best of 5 game series.

- The series is over once one team wins 3 games.
- B starts with +1 points (odds)

Draw the tree diagram for all possible outcomes of the series.

2) List all possible combinations of rolling a 4-sided die and a 6-sided die.

- Also determine the probability of X {0..5} where X is the difference of the die rolls.

Two players, A and B, are playing a game of dice.

- Player A rolls a 4-sided die and a 6-sided die and takes the difference (i.e. problem #2)
- Player B rolls a 6-sided die and subtracts one.

Player A wins on ties.

3) What is the conditional probability

- Player A wins given B's score is 3 (B rolled a 4)

4) What is the probability that player A will win any given game?

Enumeration & Farkle

Write a Matlab program to go through every combination of 6d6 and determine...

5) The odds of rolling two tripples

       dice = xxx yyy   x, y different values

6) The odds of rolling two pair

       dice = xx yy ab   x, y, a, b different

Enumeration in 6-card Poker

warning: Enumeration took 31 minutes to run on my computer....

7) In 6-card poker, you're dealt 6 cards and keep the best 5. Determine using enumeration the odds of being dealt a full-house

       hand = (xxx yy a) or (xxx yyy)   x, y, a different values

8) Determine using enumeration the odds of being dealt three of a kind

       hand = xxx a b c   a, b, c, x different values