

ECE 341 - Homework #2

Card Games. Due Thursday, May 20th

Please make the subject "ECE 341 HW#2" if submitting homework electronically to Jacob_Glower@yahoo.com (or on blackboard)

The card game *bridge* uses a 52-card deck. Each person is dealt 13 cards for their hand.

- 1) How many different hands are possible? (order doesn't matter)

- 2) What is the probability of having 8 cards of one suit in your hand?

- 3) What is the probability of having honors?
 - The top 5 cards of any suit are {10, J, Q, K, A}
 - Your hand has 4 of these (100 bonus points) or all 5 of these (150 bonus points)

In 4-card poker, you are dealt just four cards

- 4) Compute the odds of a flush in 4-card poker.
 - 4 cards of the same suit

- 5) Compute the odds of 3 of a kind in 4-card poker.
 - xxxx y

- 6) Determine the odds of drawing
 - A flush and
 - 3 of a kind

using Matlab and a Monte-Carlo simulation for 4-card poker

Conditional Probabilities & 4-card poker

- 7) Compute the probability of getting a flush if there is a single draw step
 - If you are dealt a flush, you draw zero cards
 - If you are dealt 3 cards of a suit, you keep those cards and draw one
 - If you are dealt 2 cards of a suit, you keep those cards and draw two more
 - Otherwise, draw 4 new cards

Only flushes count for this problem.

- 8) Check your answer using a Monte Carlo simulation