EE 381 Homework 1 - Part 1

This homework is due with additional parts in dropbox (laboratory section) on 2-1-2021.

1.) Using a Venn diagram show that $\overline{(A \cap B)} = \bar{A} \cup \bar{B}$. (The bar represents taking the complemement.)

2.) If $P(A) = \frac{1}{3}, P(B) = \frac{1}{2}$, and $P(A \cup B) = \frac{3}{4}$ what is the probability of

(a) $P(A \cap B)$

(b) $P(A' \cup B')$

(c) $P(A' \cap B)$

3.) The probability a grocery store sells liquor is 35% and the probability a grocery store sells tobacco is 30%. The probability a grocery store sells both liquor and tobacco is 10%. What is the probability a grocery store sells at least one?

4.) An urn contains 4 blue and 3 yellow chips. Two are removed in succession without replacement. What is the probability both chips are blue?

5.) An urn contains 4 blue and 3 yellow chips. Two are removed in succession with replacement. What is the probability both chips are blue?

6.) For the population data set {8. 2, 6, 2, 2, 9} determine the following.

The mean, $\mu = \frac{\sum x}{N}$, to one decimal place. _____

The median. _____

The mode. _____

Use the grid below to determine the standard deviation, $\sigma = \sqrt{\frac{\sum(x-\mu)^2}{N}}$

x	$x - \mu$	$(x - \mu)^2$

$\sum(x - \mu)^2 =$ _____ $\sigma =$ _____ (two decimal places)

What is the interval $(\mu - \sigma, \mu + \sigma)$?

_____

Construct a dot plot of the data. _____