MAT 142 – test #3 reminders/review

Topics:

- Using Venn and Tree diagrams to find probabilities
- Compound (and/or) probabilities
- Writing and using sample spaces to find probabilities
- Conditional probabilities
- Converting between probability and odds
- Expected Value

Practice Questions: (not all-inclusive – be sure to study all assignments & examples)

1. Based on the result of a recent survey, 15% of people choose vanilla as their favorite milkshake flavor. 35% of people don't like pickles on hamburgers. 8% of people both like vanilla milkshakes best and like pickles on hamburgers.
   a) What percent of people like vanilla milkshakes best or like pickles on their burgers?
   b) What percent of people don't like vanilla milkshakes best or do like pickles on their burgers?
2. $p(A) = 0.4$, $p(B) = (0.25)$, $p(A \cup B) = 0.5$. What is $p(A \cap B)$?
3. $p(A) = 0.65$, $p(B) = 0.3$, $p(A \cap B) = .25$. What is $p(A' \cap B')$?
4. A coin is flipped twice.
   a) Write the sample space.
   b) What is the probability of getting heads at least once?
   c) What are the odds against getting tails twice (odds that you don't get tails twice)?
5. A card is drawn from a regular deck of 52 cards, then a second card is drawn without having replaced the first card.
   a) What is p(King then 7) ?
   b) What is p(club then red) ?
   c) What is p(face card or ace, then number above 3 and below 7) ?
   d) What is $p(2^{nd}$ card = queen $\mid 1^{st}$ card = queen) ?
6. A furniture company gets 60% of its parts from factory A, 30% from factory B and the rest from factory C. Of the chairs that come from factory A, 2% have scuff marks in the wood, 3% of the chairs from factory B do and 1% of those from factory C do.
   a) What is p(A and scuffed) ?
   b) What is p(scuffed | A) ?
   c) What is p(not scuffed)
   d) What is p(B | not scuffed)
7. At the county fair, contestants test their skills in a ring toss game. A player gets 4 rings to try to throw over the neck of a bottle. A bored local reporter kept track of how many rings people were able to successfully throw. Here are the results:

# successes	0	1	2	3	4
# people	100	60	30	7	3

   If a person plays this game, what is the expected value of the number of rings successfully thrown?