CP Statistics Probability PRACTICE Final Exam – Written Portion*

***Express all answers as decimals rounded to 3 places. Also show fractions where appropriate.**

1. There are 32 children attending a day camp. The distribution of grade levels is as follows:

Grade	2nd	3rd	4th	5th
Number	8	10	9	5

If a child from this day camp is selected at random, what is the probability that …

   a. They are in 3rd grade?
   b. They are in 4th or 5th grade?
   c. They are not in 2nd grade?
   d. They are in 6th grade?

2. Passports are required to travel to foreign countries. The probability that a randomly selected American has a passport is 0.38. Suppose 4 Americans are selected at random.
What is the probability that…

   a. All of them have passports?
   b. None of them have passports?
   c. Only the first two of them have passports?
   d. At least one of them has a passport?

3. A survey was conducted among 340 female high school students. They were asked whether they were left or right-handed and whether or not they play a musical instrument. The table below summarizes the results of the survey.

Hand/Instrument	**Plays**	**Doesn't play**	**Totals**
Right-handed	74	236	310
Left-handed	18	12	30
Totals	92	248	340

If we select a respondent from this survey at random, what's the probability that she is:

   a. Left-handed?
   b. Doesn't play an instrument?
   c. Left-handed and doesn't play an instrument?
   d. Left-handed or doesn't play an instrument?

4. Suppose that 15% of Simi Valley residents own a boat, 26% own a recreational vehicle (RV) and 3% own both.

   a. Make a complete Venn diagram that illustrates this information.
   b. Find the probability that a Simi Valley resident owns neither a boat nor an RV.
   c. Find the probability that a Simi Valley resident owns a boat or RV but not both.

5. The Yosemite Club consists of 13 students, 9 seniors and 4 juniors. Two of the students will be chosen at random to represent the club at a student council meeting.

   a. Make a complete tree diagram that illustrates this situation.
   b. Find the probability that both students are in the same grade.
   c. Find the probability that at least one of the students is a senior.

CP Statistics Probability PRACTICE Final Exam – Written Portion* SOLUTIONS

***Express all answers as decimals rounded to 3 places. Also show fractions where appropriate.**

1. There are 32 children attending a day camp. The distribution of grade levels is as follows:

Grade	2nd	3rd	4th	5th
Number	8	10	9	5

If a child from this day camp is selected at random, what is the probability that ...

a. They are in 3rd grade? $10/32 = .313$
b. They are in 4th or 5th grade? $14/32 = .438$
c. They are not in 2nd grade? $24/32 = .75$
d. They are in 6th grade? $\emptyset$ (No 6th graders)

2. Passports are required to travel to foreign countries. The probability that a randomly selected American has a passport is 0.38. Suppose 4 Americans are selected at random. What is the probability that...

a. All of them have passports? $(.38)^4 = .021$
b. None of them have passports? $(.62)^4 = .148$
c. Only the first two of them have passports? $(.38)^2(.62)^2 = .056$
d. At least one of them has a passport? $1 - (.62)^4 = 1 - .148 = .852$

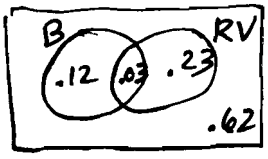
3. A survey was conducted among 340 female high school students. They were asked whether they were left or right-handed and whether or not they play a musical instrument. The table below summarizes the results of the survey.

Hand/Instrument	Plays	Doesn't play	Totals
Right-handed	74	236	310
Left-handed	18	12	30
Totals	92	248	340

If we select a respondent from this survey at random, what's the probability that she is:

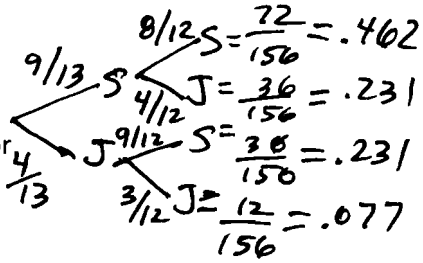
a. Left-handed? $30/340 = .088$
b. Doesn't play an instrument? $= 248/340 = .729$
c. Left-handed and doesn't play an instrument? $= 12/340 = .035$
d. Left-handed or doesn't play an instrument? $(18 + 12 + 236)/340 = .782$

4. Suppose that 15% of Simi Valley residents own a boat, 26% own a recreational vehicle (RV) and 3% own both.



a. Make a complete Venn diagram that illustrates this information.
b. Find the probability that a Simi Valley resident owns neither a boat nor an RV. .62
c. Find the probability that a Simi Valley resident owns a boat or RV but not both. $.12 + .23 = .35$

5. The Yosemite Club consists of 13 students, 9 seniors and 4 juniors. Two of the students will be chosen at random to represent the club at a student council meeting.



a. Make a complete tree diagram that illustrates this situation.
b. Find the probability that both students are in the same grade. $.462 + .077 = .539$
c. Find the probability that at least one of the students is a senior. $.462 + .231 + .231 = .924$