Stat Practice # 5 **Date:_____** **Section: _____** **Name: _____**

Help can be found in class lecture, topics review or related PowerPoints

a) What are the 4 steps in counting problems?
b) What is the definition of random variable?
c) What is the difference between discrete and continuous random variable? Cite two examples for each.
d) What is the probability distribution table?
e) To construct a probability distribution table, how many columns are needed and what must be the heading for each column?
f) The summation of what column in probability distribution must add to one?
g) What is the formula to find mean or expected value for a probability distribution?
h) The summation of what column in probability distribution results in mean or expected value?
i) How can we use TI calculator to compute mean or expected values for a probability distribution?

a) In how many ways Moe can dress up, if he has 10 shirts, 5 pants, and 4 pair of shoes? a) 200
$10 \times 5 \times 4 = 200$

b) If a password should consist of 2 letters first and 3 digits after, then how many different passwords are possible? $26 \times 26 \times 10 \times 10 \times 10 = 676,000$ b) 676,000

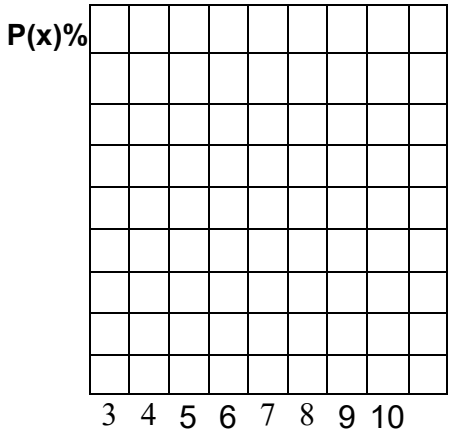
c) To create your own burger, there are 2 different kinds of cheese, 3 different breads, and 3 different sauces he can choose from, and three choice of cooking and having tomato and lettuce, but you can only choose one of each category. How many different ways can he create this burger? $2 \times 3 \times 3 \times 3 \times 2 = 108$ **c)** 108

d) Diane is ordering pizza for her family. There are 4 different possible sizes of the pizza. Also, she has to choose one of 5 toppings to place on the pizza and one of 3 different types of cheese for the pizza. In addition, she must choose one of 3 different kinds of crust. How many different ways can she have her pizza? $4 \times 5 \times 3 \times 3 = 180$ **d)** 180

e) How many 3-digit odd numbers can be formed from the digits 0, 2, 3, 4, 5, 7 and 9? $6 \times 7 \times 4 = 168$ **e)** 168

Problem 1) Let **Random Variable X** = the number of accidents at the city of Roseville in a given day for the last 50 days.

B			
x	**f**	**P(x)**	**x P(x)**
3	11	**0.22**	**0.66**
4	10	**0.20**	**0.80**
5	9	**0.18**	**0.90**
6	8	**0.16**	**0.96**
7	5	**0.10**	**0.70**
8	4	**0.08**	**0.64**
9	2	**0.04**	**0.36**
10	1 +	**0.02**	**0.20**
	50	1.00 = ?	$\sum xp(x) = 5.22$
Mean = 5.22			



- Complete the table, draw probability distribution and find the probability that,

a) At **least** there will be 6 **accidents occurs** in a given day. **1-a) 0.40**
b) At **most** there will be 7 **accidents occurs** in a given day. **1-b) 0.86**
c). Find the **mean** of number of **accidents occurs** in a given day. **1-c) 5.22**

Problem 2)

x	$p(x)$	$x\,p(x)$
500	**0.4**	**200**
400	**0.3**	**120**
300	**0.2**	**60**
100	**.10**	**10**
		$\sum x\,p(x) = 390$

2) Given the above probability distribution table, find the expected value **2) 390**

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3) In a spinner there are 4 partitions, if you spin the dial and it stops on the first one you win \$4, on the second one you win \$6, on the third one you win 5 and on the fourth one you pay \$10. The dial has equal chance to stop at any partition. The dial has equal chance to stop at any partition.

x	$p(x)$	$x\,p(x)$
4	$1/4$	$4(1/4) = 1$
6	$1/4$	$6(1/4) = 1.5$
5	$1/4$	$5(1/4) = 1.25$
-10	$1/4$	$-10(1/4) = 2.5$
		$\sum x\,p(x) = \$1.25$

hat will be the expected gain for the player? **3) \$1.25**

4) In a game, you have a 1 probability of winning \$120 and a 49 probability of losing \$ 6. **4) -\$3.48**

W	\$120	1/50	\$2.4
L	\$- 6	49/50	-\$5.88
			-\$3.48

5) Suppose you pay \$2.00 to roll a fair die with the understanding that you will get back \$4.00 for rolling a 3, 5 or a 4, nothing otherwise. What is your expected value of your gain or loss? **5) \$0**

W	\$2	3/6	\$1
L	\$- 2	3/6	-\$1
			0

6) Suppose you buy 10 tickets for \$1 out of a lottery of 1000 tickets where the prize for the one winning ticket is to be \$1000. What is your expected value? **6) \$0**

W	\$990	10/1000	\$9.9
L	\$- 10	990/1000	-\$9.9
			\$0