New York City College of Technology MAT1272 Exam II review, Halleck, Sp 2012

Actual exam will be about half as long as this review, with between 5 and 7 questions.

1 A random variable has the following probability distribution:

 X 3 1 0 4

 P(X) 0.1 0.3 0.4 ?

1. Find the probability when X=4. b) Find the mean and the standard deviation**.**

2. There are 8 red balls and 4 blue balls in a box.

a) Draw a probability tree for 2 balls selected randomly from the box if the selection is done with replacement.

b) Draw a probability tree for 2 balls selected randomly from the box if the selection is without replacement.

c) If 3 balls are selected without replacement, what is the probability that the first ball is red, the second and the third balls are blue?

3. If a fair coin is tossed 7 times find the probability of getting

a) exactly 5 heads b) at least 5 heads

c) repeat parts a and b if the coin is bent so that the chance of getting a head is 0.4.

4. In a statistics club, there are 5 senior students, 4 juniors, 5 sophomores, and 6 freshmen.

1. In how many ways can the club form a committee of 4 students without regard to rank?
2. In how many ways can the club form a committee which consists of 2 seniors, 2 juniors and 1 freshman?
3. The club has decided to elect a president, vice president, treasurer and secretary. In how many ways can they do this if the pres and vp must come from the upper classmen and the treasurer and secretary must come from the lower classman?

5. New York State has found that 30% of consumer complaints are valid. The State received 6000 complaints last yr.

a) About how many of them are expected to be valid? (i.e. find the mean).

b) Find the standard deviation.

 6. X represents the number of hours working on a computer, Y represents the alertness level on a scale of 1 to 10, 10 being alert, 1 essentially asleep.

 X 2 4 4 6

 Y 9 3 7 5

a) Find the equation of the regression line for the data. b) Interpret the slope and y-intercept

c) If X = 10, what is the predicted value for Y? d) Find and interpret the coefficient of correlation.

7. The following data represent the number of days absent (X) and final grade (Y) in a statistics course.

a) Find and interpret the coefficient of correlation. b) Find the equation of the regression line.

c) Interpret the slope & y-intercept. d) If Carol has 5 absences, what final grade can she expect?



8) A card is selected at random from a deck of 52 cards. What is the probability that this card is

a) a Queen? b) a Diamond? c) a Queen and a Diamond? d) a Queen or a Diamond?

9) A survey was recently done on active duty military personnel. Below you will find some of the results in the form of a partially filled two way table. The entries are in percent.

a) Finish filling in the chart. b) draw a box around the joint probabilities c) circle the marginal probabilities

d) What is the chance of a military personnel being female given that she is suburban?
e) What is the chance of a military personnel being female given that she is urban?

f) What is the chance of a female military personnel being suburban?

g) What is the chance of a male military personnel being suburban?



10. a) Explain law of large numbers and explain how you would used it to find the chance of a head for a bent coin. b) In chart prob 9, give example of mutually exclusive events & example of 2 events that are not mutually exclusive. c) In roll of 2 dice, give an example of mutually exclusive events and one of 2 events that are not mutually exclusive.