Math 103 F'10 Test #2 Name_____

Directions: Do all your work on these pages. **Show all your work for full credit.** Place your answers in appropriate spaces. Have Fun.

1. The accounting of the passengers on the Titanic is listed below.

	Men	Women	Boys	Girls
Survived	332	318	29	27
Died	1360	104	35	18

a. If you choose one name off the ship's manifest, find the probability that that person was a boy or died.

_____

b. If you choose one name off the ship's manifest, find the probability that that person survived.

_____

2. You have 20 people to choose from to complete a task. 7 are men and 13 are women. If you randomly select 2 people, what is the probability they are both men?

_____

3. Give the sample space for the following experiment: A Boeing 737 Jet has 3 engines. List all the different ways those 3 engines together can work (W) or fail (F).

4. Find the probability that 3 different people have their birthdays on the same day of the week. (Monday, Tuesday, …)

_____

5. If you randomly select 6 players from a 12 player volleyball team, find the probability you choose the six tallest.

_____

6. Identify the correct way of counting the following (nm, n!, nCr, nPr):

a. The # of ways to select 3 people from 10 people:

_____

b. The number of ways to arrange 7 drummers in a drumline:

_____

c. The number of ways the top 3 can finish in a 10 women race:

_____

7. Find the mean and the S.D. for the age of the youth in a soccer league:

x	P(x)
8	30%
9	37%
10	14%
11	19%

Mean_____S.D. _____

Interpret the Mean of this distribution.

_____

_____

8. Employees at Bob's store get raises by passing competency tests. On one test, there are 8 questions, and the probability of getting each right by guessing is 20%. If an employee needs **5 or more** questions to get a raise, what is the probability of getting a raise by guessing?

_____

9. You have 3 different protection devices for your HomeSafe where you keep all your important papers. Each protection device has a 92% chance of stopping a burglar, and each is independent of the other. Find the probability that if a burglar breaks into your house, the burglar will be stopped.

_____

10. The prizes that can be won in a sweepstakes have the following probability: $1,000 (1 chance in 10,000), $200 (3 chances in 10,000), $50 (4 chance in 10,000), and $10 (22 chance in 10,000). If the ticket costs $1, find the expected value for the sweepstakes. (Hint: one outcome is -$1 with a probability = 9970/10000)

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11. A final exam has 10 multiple choice questions and each question has 5 choices of which only 1 is right. An unprepared student has to guess on each question.

a. Find the Mean and S.D. for the number of questions such a student would get correct.

b. If a student had to get 7 or more questions correct to pass, would it be unusual for **this** student to pass the final? Why?

a: Mean_____ S.D._____

b: Yes No (circle one)

_____

_____

12. For a Standard Normal Distribution, Find the following:

a. $P(z > .56)$

_____

b. $P(-.4 < z < 1.06)$

_____

c. $P(z<1.96)$

_____

d. The cut off z score for the top 15%.

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