

**Learning Center's
Statistics 2500
Exam 1 Review**

Middlebush Auditorium
Monday, Feb. 25
5:00-7:00 p.m.

1. Data: 5, 20, 45, 59, 70, 70 Find the mean, median, and mode.
2. Using the same data as before (5, 20, 45, 59, 70, and 70), find the variance, standard deviation, and range.
3. A set of 500 measurements has a mean and standard deviation of 50 and 10, respectively.
 - (a) Making no assumptions about the shape of the distribution, how many observations are between 32 and 68?
 - (b) What proportion of the observations are over 75?
 - (c) Assuming the frequency distribution of the measurements is mound shaped, what proportion of the observations are less than 30?
4. Kaley and Tyler are comparing their performance in a class they had last semester with different teachers. During the semester Kaley earned 470 points. The class average was 380 and the standard deviation was 50. In his class, Tyler earned 750 points for the semester. The average for his class was 630 and the standard deviation was 60. Who had the relatively better score for the semester?
5. A cooler contains one can each of Pepsi, Diet Pepsi, Coke, Diet Coke and Minute Maid. Two cans are selected at random. If the event A is that the Coke was selected, the event B is that the Minute Maid was selected, and the event C is that both cans were diet, find each of the following probabilities.
 - (a) $P(A)$
 - (b) $P(C)$
 - (c) $P(A \cap B)$
 - (d) $P(A \cup C)$
6. If a person is convicted of reckless driving, the probabilities for being fined, for having his or her license revoked, and for both are 0.80, 0.50, and 0.48. Find the probability that a person convicted of reckless driving will:
 - (a) Be fined or have his or her license revoked.
 - (b) Neither be fined nor have his or her license revoked.
 - (c) Be fined but not have his or her license revoked.
 - (d) Are the events "person is fined" and "person has his or her license revoked" independent? Give a reason for your answer.
7. Two hundred randomly selected adults were asked what kind of car they would purchase if they had to choose from the "Big 3" American car companies. The results are as follows:

	Ford	GM	Chrysler
Men	30	40	50
Women	20	30	30

 - (a) Find the probability that a randomly selected person is a woman who prefers Ford.
 - (b) If a randomly selected person prefers a GM, find the probability that the person is male.
8. A certain group of people contains 45% men and 55% women. Forty-seven percent of the group are registered voters. Twenty-six percent of the men are registered voters. One person is randomly selected from this group. Find the probability that this person is both a man and a registered voter.

9. A large group of people consists of 30% males. For a randomly selected male, the probability that he has played golf is .8. For a randomly selected female, the probability that she has played golf is .4. Find the probability that a randomly selected person has played golf.
10. Suppose you wish to draw a random sample of 4 people from a group of 200 people. What is the probability that any particular sample is selected?
11. In a game, you are allowed to pick two envelopes from a box containing 5 envelopes. Two of the envelopes contain \$10-bills. The other three envelopes contain pieces of paper saying: "Thanks for playing!" Let x = your total winnings from one play of the game.
- (a) Make a table for the probability distribution of x .
- (b) Find the mean, variance, and standard deviation for this probability distribution.
12. It is known that 80% of the cars on the road have improperly inflated tires. Find the probability that a random sample of 10 cars will show:
- (a) Exactly 7 with improperly inflated tires.
- (b) More than 7 with improperly inflated tires.
- (c) Find the mean and the standard deviation for this probability distribution.
13. Suppose the number of cigars smoked per day by a particular smoker approximately follows a Poisson distribution with a mean of 2. Find the probability that the smoker will smoke exactly 3 cigars on a given day.

SHORT ANSWERS

1. Mean = 44.83 Median = 52 Mode = 70
2. Variance = 734.17 Standard Deviation = 27.10 Range = 65
3. (a) At least 346 (b) At most .16 (c) Approximately .025
4. Tyler; $2 > 1.8$.
5. (a) $P(A) = .4$ (b) $P(C) = .1$ (c) $P(A \cap B) = .1$ (d) $P(A \cup C) = .5$
6. (a) .82 (b) .18 (c) .32 (d) No; $P(F \cap LR) \neq P(F) \cdot P(LR)$
7. (a) .10 (b) .5714
8. .117
9. .52
10. $\frac{1}{64,684,950}$
11. (a)

x	p(x)
0	.3
10	.6
20	.1
- (b) Mean = 8
Variance = 36
Std. Dev. = 6
12. (a) .201 (b) .678 (c) Mean = 8 Std. Dev. = 1.265
13. .180