

Math 191: Probability & Statistics Exam #1A

Week #6

Name: _____

INSTRUCTIONS: You may use a calculator for this exam and a letter-sized study sheet with information written on a single side. You must show all of your work in order to receive full credit. Read each question carefully. Be certain that you have answered the question that was asked. Answers supplied as decimals must be accurate to *at least four significant digits*.

Problem	Points	Score
1	20	
2	20	
3	20	
4	20	
5	20	
Total	100	

(1) Complete the following phrases with the relevant vocabulary word from the list provided. You may fill in the word or simply write the letter representing it.

- The midrange is a measure of _____.
- Two subtypes of quantitative data are _____ and _____ data.
- A survey of 875 college students notes that 69% of them have purchased alcohol illegally while in college. The 875 students represents a _____.
- The type of donut purchased at a Dunkin Donuts is an example of a _____ variable.
- If I conduct a survey of voting Americans that sends a government official to ask “Have you paid your taxes this year?”, my experiment contains a _____ error.

A. Central Tendency

B. Continuous

C. Discrete

D. Dispersion

E. Histogram

F. Measurement

G. Nominal

H. Nonresponse

I. Ogive

J. Ordinal

K. Population

L. Position

M. Qualitative

N. Quantitative

O. Sample

(2) You are given the following bowling scores:

105	129	148	158	166	167	167	169	172	174
181	181	182	186	191	192	198	198	203	214
229	233	241	250	254	261				

(a) Construct a **frequency distribution** for the data set using five classes defined by the following class endpoints: 102.5, 134.5, 166.5, 198.5, 230.5 and 262.5.

(b) Plot a **relative percentage polygon** of the data.

(c) Use the class midpoints and frequencies to estimate the mean \bar{x} and standard deviation s of the data.

- (3) Below is a list of closing prices¹ (rounded to the nearest dollar) for 10 stocks chosen at random from the Dow Jones Transportation Average.

Stock	Price	Stock	Price
Alexander & Baldwin	33	CNF	35
Delta Air Lines	8	FedEx	74
GATX	22	J.B. Hunt	29
Norfolk Southern	22	Northwest Airlines	11
Ryder System	38	Southwest Airlines	15

- (a) Determine the **five-number summary**² for the share prices listed above.

- (b) Calculate the **interquartile range** and the **midhinge**.

- (c) Draw a **Box-and-Whisker Plot** of the data.

¹for Tuesday April 13, 2004

²Min,Q1,Median,Q3,Max

(4) A carton of 10 rechargeable batteries contains one that is defective. In how many ways can an inspector

(a) choose 3 of the batteries?

(b) choose 3 of the batteries and get the one that is defective?

(c) choose 3 of the batteries and **not** get the one that is defective?

(5) Every week, Nielsen Media Research lists the top ten primetime broadcast TV programs. For the week from 4/5/04 to 4/11/04, Nielsen estimated a total of 108.4 million TV households. Of this group, approximately 23.5 million watched American Idol, 13.8 million watched Without A Trace, and 7.3 million watched both TV shows. What is the **probability** that a randomly selected household

(a) watched American Idol last week?

(b) watched both programs?

(c) **did not** watch Without A Trace last week?

(d) watched American Idol **or** Without A Trace?