

Multiple Choice Question Bank – Chapter 1

- B 1. School administrators collect data on students attending the school. Which of the following variables is quantitative?
A) class (freshman, soph., junior, senior) B) grade point average
C) whether the student is in honors classes D) whether the student has taken the SAT
- A 2. The SPCA collects the following data about the dogs they house. Which is categorical?
 A) breed B) age C) weight D) number of days housed
- A 3. We collect data from 50 female students. Which variable is categorical?
 A) hair color B) height
C) hours of internet use last week D) number of pets
- C 4. The United States Census collects data on many variables about individuals and households. Which variable is categorical?
 A) family size B) hours worked per week
 C) type of residence D) monthly mortgage
- D 5. On December 5, 2014, *Clinical Pediatrics* published the article “Fast Food Consumption and Academic Growth in Late Childhood.” The researchers found evidence that high levels of fast food consumption were associated with slower growth of academic skills. What is the population of interest?
A) 8544 fifth-grade students studied
B) Fast food restaurants
C) Number of fast food meals consumed per week
 D) All children in the United States
- B 6. *The British Medical Journal* published an article on December 10, 2014, entitled “The Association between Exaggeration in Health Related Science News and Academic Press Releases: Retrospective Observational Study.” Among other findings, they reported that 36% of the press releases contained exaggerated connections between animal research results and conclusions about similar effects in humans. What is the sample?
A) All press releases B) 462 press releases on biomedical and health science
C) Animal studies D) 36% of press releases

Multiple Choice Question Bank – Chapter 2

Use the following table for questions 1 through 3.

		Like Dogs		
		Yes	No	Total
Like Cats	Yes	194	21	215
	No	110	10	120
	Total	304	31	335

- C 7. The table shows whether students in an introductory statistics class like dogs and/or cats. What percentage of students in the class like both cats and dogs?
A) 64% B) 90% **C) 58%** D) 65%
- B 8. The table shows whether students in an introductory statistics class like dogs and/or cats. What percentage of students who like cats also like dogs?
A) 64% **B) 90%** C) 58% D) 65%
- C 9. The table shows whether students in an introductory statistics class like dogs and/or cats. Are the students' feelings about cats independent of their feelings about dogs?
A) No, because 64% of the class likes cats and 91% of the class likes dogs.
B) No, because 64% of the class likes cats and 64% of those who like dogs also like cats.
C) Yes, because 64% of the class likes cats and 64% of those who like dogs also like cats.
D) It cannot be determined, since this is survey data.

Use the following table for questions 4 and 5.

Job Class	Transportation			Total
	Car	Bus	Train	
Management	26	20	44	90
Labor	56	106	168	330
Total	82	126	212	420

- b 10. The table shows how a company's employees commute to work. What percentage of employees takes the bus?
A) 5% B) 16% C) 22% **D) 30%**
- A 11. The table shows how a company's employees commute to work. What percentage of laborers takes the bus?
A) 32% B) 84% C) 25% D) 79%

Use the following table for questions 6 through 8.

	Cash	Check	Charge	Total
Male	18	10	12	40
Female	18	12	30	60
Total	36	22	42	100

- D 12. One day a store tracked the way shoppers paid for their purchases. Their data are summarized in the table.

What do the numbers 18, 10, 12 represent?

- A) The marginal distribution of method of payment
 B) The marginal distribution of gender
 C) The conditional distribution of gender for shoppers who paid cash
 D) The conditional distribution of payment method for males

- D 13. One day a store tracked the way shoppers paid for their purchases. Their data are summarized in the table.

What percentage of women did *not* pay cash?

- A) 18% B) 42% C) 50% D) 70%

- B 14. One day a store tracked the way shoppers paid for their purchases. Their data are summarized in the table.

Is there an association between gender and method of payment?

- A) No, because equal numbers of men and women paid cash.
 B) Yes, because 45% of men paid cash, compared to 30% of women who paid cash.
 C) Yes, because half of the people who paid cash were women.
 D) It cannot be determined, since there are three methods of payment.

- C 15. A Pew Research survey asked Americans their feelings on medical use of embryonic stem cells. Suppose they surveyed 340 people and got the results summarized in the table.

What percentage of those surveyed identified as Moderates?

- A) 8.5% B) 29% C) 44% D) 19.5%

- D 16. A Pew Research survey asked Americans their feelings on medical use of embryonic stem cells. Suppose they surveyed 340 people and got the results summarized in the table.

What percentage of Moderates indicated that medical use of embryonic stem cells was morally wrong?

- A) 8.5% B) 29% C) 44% D) 19.5%

	Morally Wrong	Not A Moral Issue	Morally Acceptable	Total
Conservative	36	33	30	99
Moderate	29	62	58	149
Liberal	14	42	36	92
Total	79	137	124	340

Name _____

Statistics Chapter 2: Test C

To determine if people's preference in dogs had changed in the recent years, organizers of a local dog show asked people who attended the show to indicate which breed was their favorite. This information was compiled by dog breed and gender of the people who responded. The table summarizes the responses.

	Female	Male	Total
Yorkshire Terrier	73	59	132
Dachshund	49	47	96
Golden Retriever	58	33	91
Labrador	37	41	78
Dalmatian	45	28	73
Other breeds	86	67	153
Total	348	275	623

17 Identify the variables and tell whether each is categorical or quantitative.

Gender } categorical
Dog Breed }

18. Which of the W's are unknown for these data?

Who, When, What, Where, Why, How

• When & how was survey given?
• When & where was dog show?

19. Find each percent.

- a) What percent of the male responses favored Dalmatians? 10.2%
- b) What percent of the responses were females who favored Dalmatians? 7.2%
- c) What is the percent of Dachshund fans were female? 51%
- d) What percent of the female responses did not favor Dalmatians? 87.1%

20. State the marginal distribution of breeds.

132 Yorkshires, 96 Dachshund, 91 GR,
78 labs, 73 Dalmatian, 153 other

21. Give the conditional relative frequency distribution of the breeds among female respondents.

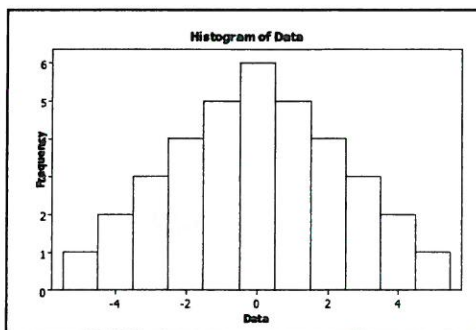
Among females: 20.9% Yorkshire, 14.2% Dachshund,
16.7% GR, 10.6% labs, 12.9% Dalmatians, 24.7% other

22. Do you think the breed selection is independent of gender? On the back of this paper statistical evidence to support this claim.

(answers may vary - support w/ data & stats!)

Multiple Choice Question Bank – Chapter 3

- C 23. Which is true of the data shown in the histogram?



- I. The distribution is approximately symmetric.
 II. The mean and median are approximately equal.
 III. The median and IQR summarize the data better than the mean and standard deviation.

A) I only B) III only C) I and II D) I and III

- C 24. Two sections of a class took the same quiz. Section A had 15 students who had a mean score of 80, and Section B had 20 students who had a mean score of 90. Overall, what was the approximate mean score for all of the students on the quiz?

A) 84.3 B) 85.0 C) 85.7 D) none of these

- C 25. Your Stats teacher tells you your test score was the 3rd quartile for the class. Which is true?

- I. You got 75% on the test.
 II. You can't really tell what this means without knowing the standard deviation.
 III. About 25% of your classmates got a score that was higher than your score.

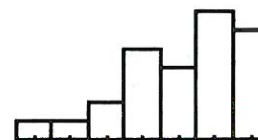
A) I only B) II only C) III only D) none of these

- B 26. The advantage of making a stem-and-leaf display instead of a dotplot is that a stem-and-leaf display

- A) satisfies the area principle.
 B) preserves the individual data values.
 C) shows the shape of the distribution better than a dotplot.
 D) A stem-and-leaf display is for quantitative data, while a dotplot shows categorical data
 E) none of these

- A 27. Last weekend police ticketed 18 men whose mean speed was 72 miles per hour, and 30 women going an average of 64 mph. Overall, what was the mean speed of all the people ticketed?
 A) 67 mph B) 68 mph C) 69 mph D) none of those

- D 28. Which is true of the data shown in the histogram?



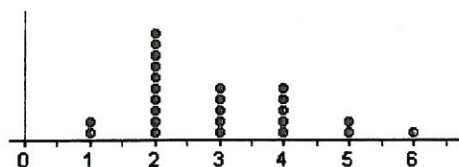
- I. The distribution is skewed to the right.
 II. The mean is probably smaller than the median.
 III. We should use median and IQR to summarize these data.
 A) I only B) II only C) III only D) II and III only

- C 29. If we want to discuss any gaps and clusters in a data set, which of the following should not be chosen to display the data set?
 A) histogram B) stem-and-leaf plot C) boxplot D) any of these would work

- D 30. We might choose to display data with a stemplot rather than a boxplot because a stemplot

- I. reveals the shape of the distribution.
 II. is better for large data sets.
 III. displays the actual data.
 A) I only B) II only C) III only D) I and III

- C 31. The distribution at the right is the number of family members reported by 25 people in the 2010 Census. The best description for the shape of this distribution is
 A) Unimodal and symmetric B) bimodal
 C) skewed right D) skewed left



- B 32. Which type of plot would be least likely to reveal that a distribution is bimodal?
 A) histogram B) boxplot C) stemplot D) dotplot

Name _____

Statistics Chapter 3: Quiz 2B

33. Name the statistic (mean, median, etc) that best fits each description below.

- Median A good choice for describing the center of skewed data
- Range Compares the extremes of the data.
- St. Dev. Summarizes how far each data value is from the average of the data
- Median Splits a histogram into halves.
- Median Describes the center of symmetric data better than it describes the center of skewed data.
- IQR Summarizes the spread of the central 50% of the data.
- Mean The "balancing point" of the data.
- Q1 The center of the lower half of the data.
- Mode Where the peaks of a histogram are.

34. Here are the ages of the last 15 Presidents of the United States at their first inauguration listed from youngest to oldest. Find the five number summary of this set of data and describe what each number tells you about the data.

\overline{LE} $Q1$ Med $Q3$ VE

43, 46, 47, 51, 51, 52, 54, 54, 55, 56, 60, 61, 62, 64, 69

IQR = 10
 outliers < 36
 or > 76

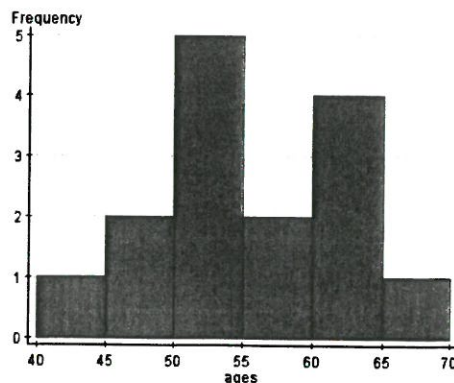
5 Number Summary	Value	Describe in Context
Minimum	43	Youngest Prez was 43
First Quartile	51	25% were younger than 51
Median	54	50% were younger, 50% older than 54
Third Quartile	61	25% were older than 61
Maximum	69	Oldest prez was 69

35 Find the mean and standard deviation of these ages using your calculator.

Mean = 55 St. Dev = 7.17 yrs.
 \bar{x} S_x

36 Examine this histogram of the ages. Is it appropriate to use mean and standard deviation to describe this distribution? _____ Why or why not?

Answers may vary...
 (I say yes... data basically unimodal and symmetric)



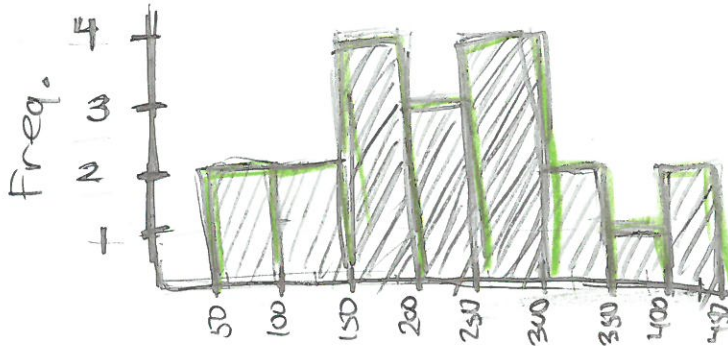
Name _____

Statistics Chapter 3: Test C

37. A brake and muffler shop reported the repair bills, in dollars, for their customers yesterday.

88	283	312	290	172
154	400	381	346	181
203	118	143	252	227
56	192	292	213	422

- a. Sketch a histogram for these data.



- b. Find the mean and standard deviation of the repair costs.

$$\bar{x} = 236.25$$

$$s_x = 103.43$$

- c. Is it appropriate to use the mean and standard deviation to summarize these data? Explain.

Yes - data are basically unimodal and symmetric

- d. Describe the distribution of repair costs.

Average repair: \$236.25
 Lowest = \$56, Highest = \$422
 Most repairs cost \$150-\$300
 (symmetric distribution)

38. On Monday, a class of students took a big test, and the highest score was 92. The next day, a student who had been absent made up the test, scoring 100. Indicate whether adding that student's score to the rest of the data made each of these summary statistics increase, decrease, or stay about the same:

a. mean

increase

b. median

same (or increase)

c. range

increase (or same)

d. IQR

same

e. standard deviation

increase