

Econ205_Midterm1_A

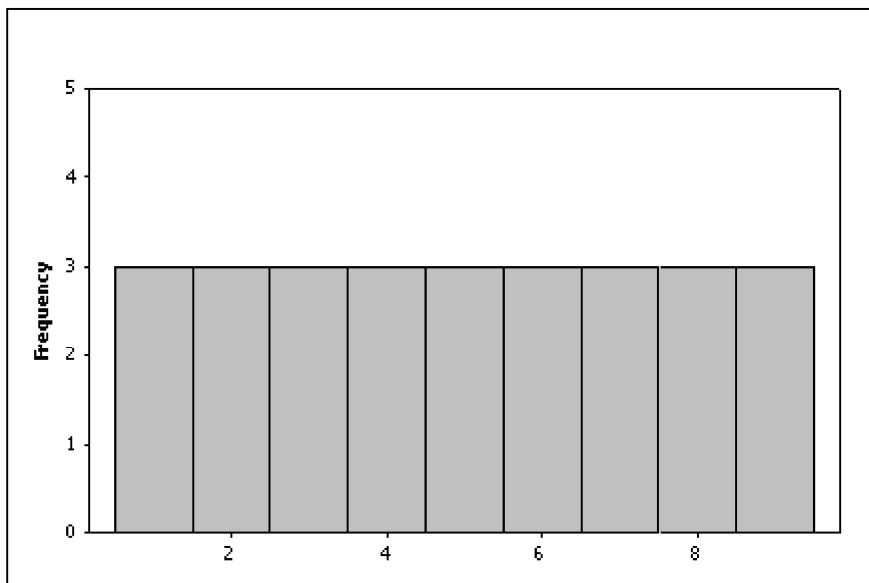
Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. Which of the following represents a graphical presentation of interval data?
 - a. A bar chart.
 - b. A histogram.
 - c. A pie chart.
 - d. All of these choices are true.

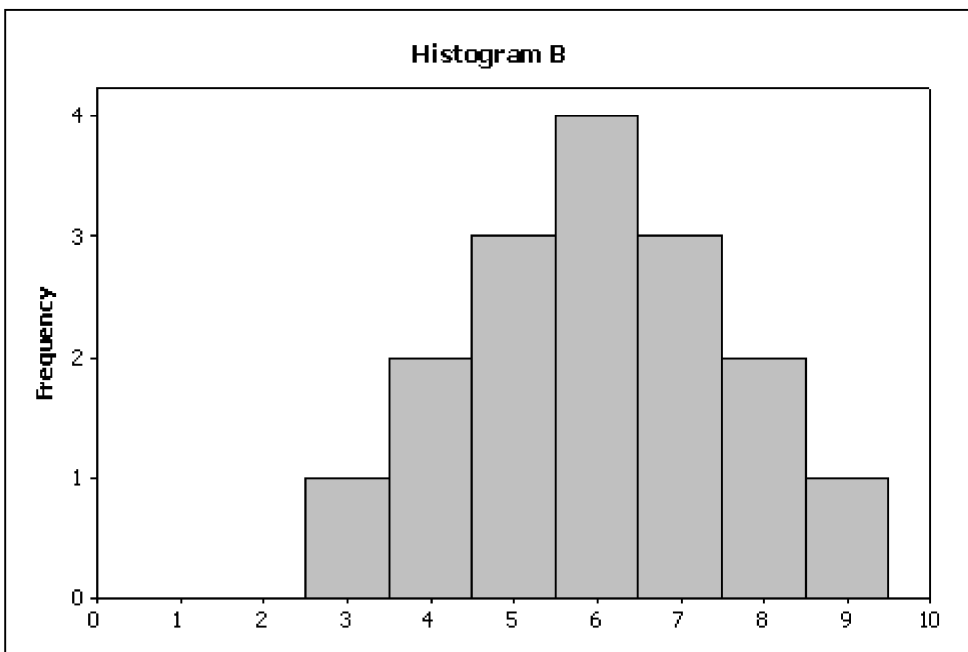
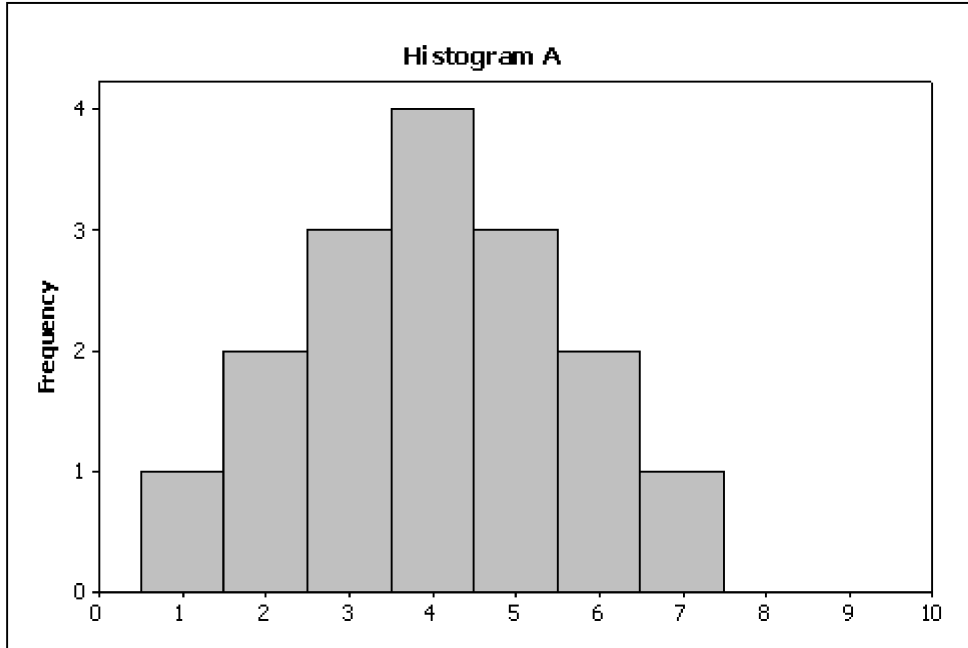
- _____ 2. Which of the following statements about histograms is false?
 - a. A histogram is a summary of interval data.
 - b. A histogram is made of a series of intervals, called classes.
 - c. The classes in a histogram cover the complete range of observations.
 - d. All of these choices are true.

- _____ 3. Which of the following describes the shape of the histogram below?



- a. Positively skewed
- b. Negatively skewed
- c. Symmetric
- d. None of these choices

___ 4. Compare the two histograms below. Which statement is true?



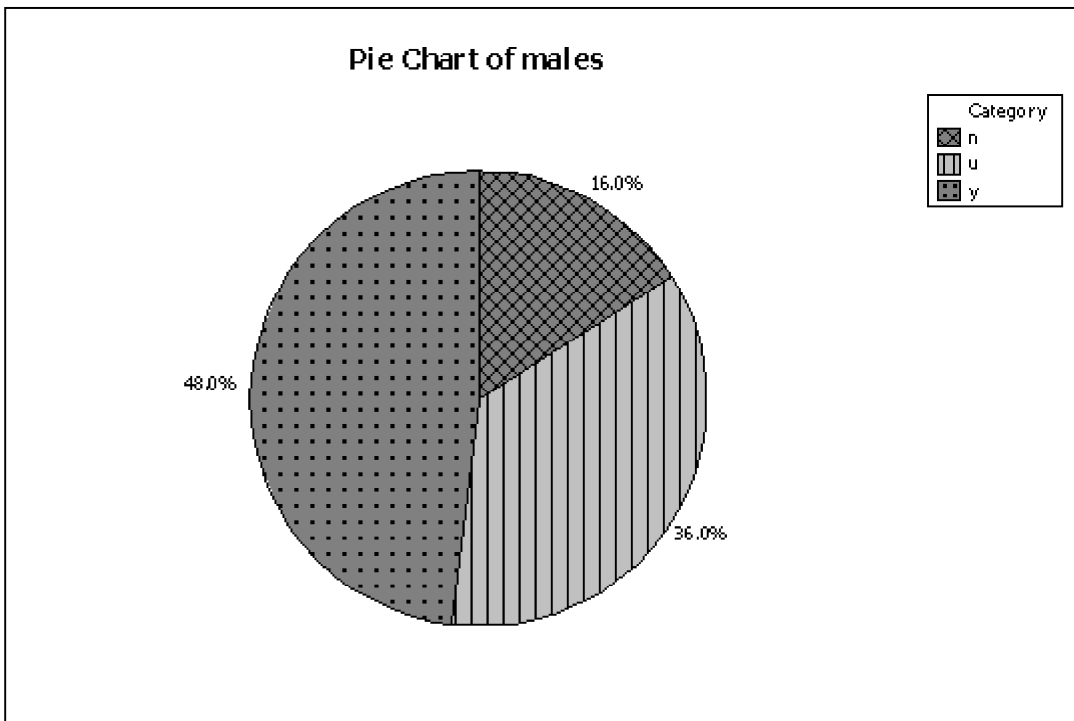
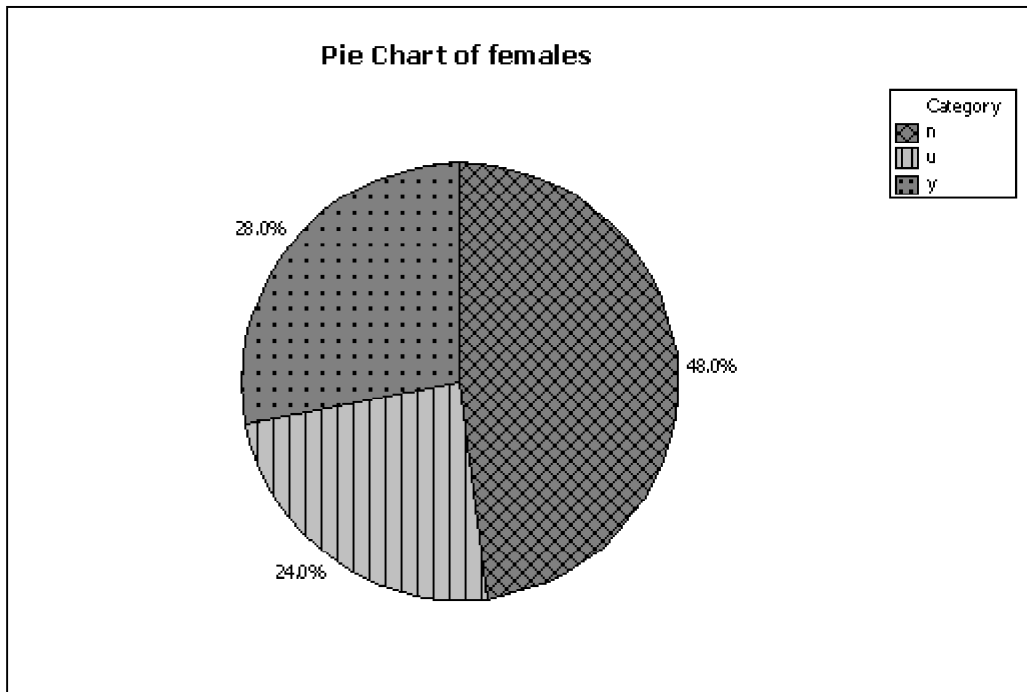
- The spread of histogram A is smaller than the spread of histogram B.
- The spread of histogram A is larger than the spread of histogram B.
- The spread of histogram A is the same as the spread of histogram B.
- You cannot compare the spreads of these two histograms without the original data.

- _____ 5. Which of the following statements about shapes of histograms is true?
- A histogram is said to be symmetric if, when we draw a vertical line down the center of the histogram, the two sides are identical in shape and size.
 - A negatively skewed histogram is one with a long tail extending to the left.
 - A positively skewed histogram is one with a long tail extending to the right.
 - All of these choices are true.
- _____ 6. Which of the following is true about a stem-and-leaf display?
- You can recreate the original data set from it.
 - Its shape resembles a histogram turned on its side.
 - It provides an organized way to depict interval data.
 - All of these choices are true.
- _____ 7. What does the length of each line of a stem-and-leaf display represent?
- The percentage of observations in the interval represented by that stem.
 - The number of observations in the interval represented by that stem.
 - The total frequency of observations within or below that stem.
 - The number of digits to the left of the decimal point.
- _____ 8. Which of the following describes an ogive?
- A graphical representation of frequencies.
 - A graphical representation of relative frequencies.
 - A graphical representation of cumulative frequencies.
 - A graphical representation of cumulative relative frequencies.
- _____ 9. Which of the following techniques can be used to explore relationships between two nominal variables?
- Comparing the relative frequencies within a cross-classification table.
 - Comparing pie charts, one for each column (or row).
 - Comparing bar charts, one for each column (or row).
 - All of these choices are true.
- _____ 10. A statistics professor classifies his students according to their grade point average (GPA) and their gender. The resulting cross-classification table is shown below.

	<i>GPA</i>		
<i>Gender</i>	Under 2.0	2.0 – 3.0	Over 3.0
Male	5	25	10
Female	10	20	30

- Which of the following describes the relationship between GPA and gender shown by this table?
- A higher percentage of females have GPAs over 3.0, compared to males.
 - A lower percentage of females have GPAs over 3.0, compared to males.
 - Females and males each have the same percentage of GPAs over 3.0.
 - You cannot compare male and female GPAs because the total number in each group is not the same.

11. Two hundred males and two hundred females were asked whether or not college football should have a playoff system (yes/no/undecided). Pie charts of the responses for males vs. females are shown below. Which of the following describes the relationship between gender and opinion?



- a. A higher percentage of males want a playoff system compared to females.
 - b. More males than females are undecided on this issue.
 - c. Gender and opinion on a playoff system are related.
 - d. All of these choices are true.
- _____ 12. In a histogram, the proportion of the total area which must be to the left of the median is:
- a. exactly 0.50.
 - b. less than 0.50 if the distribution is negatively skewed.
 - c. more than 0.50 if the distribution is positively skewed.
 - d. unknown.
- _____ 13. Which of these measures of central location is not sensitive to extreme values?
- a. The mean
 - b. The median
 - c. The mode
 - d. All of these choices are true.
- _____ 14. Which of the following summary measures is sensitive to extreme values?
- a. The median
 - b. The interquartile range
 - c. The mean
 - d. The first quartile
- _____ 15. In a histogram, the proportion of the total area which must be to the right of the mean is:
- a. less than 0.50 if the distribution is negatively skewed.
 - b. exactly 0.50.
 - c. more than 0.50 if the distribution is positively skewed.
 - d. exactly 0.50 if the distribution is symmetric and unimodal.
- _____ 16. A sample of 20 observations has a standard deviation of 3. The sum of the squared deviations from the sample mean is:
- a. 20.
 - b. 23.
 - c. 29.
 - d. 171.
- _____ 17. Which of the following statements is true regarding the data set 8, 8, 8, 8, and 8?
- a. The range equals 0.
 - b. The standard deviation equals 0.
 - c. The coefficient of variation equals 0.
 - d. All of these choices are true.
- _____ 18. Assuming a linear relationship between X and Y , if the coefficient of correlation (r) equals -0.80 , this means that:
- a. there is very weak correlation.
 - b. the slope b_1 is -0.80 .
 - c. the value of X is always greater than the value of Y .
 - d. None of these choices are true.

- _____ 19. Generally speaking, if two variables are unrelated (as one increases, the other shows no pattern), the covariance will be:
- a large positive number.
 - a large negative number.
 - a positive or negative number close to zero.
 - None of these choices.

_____ 20.

X	Pounds
83	106
71	135
90	143
90	149
86	139
86	114
90	175
100	146

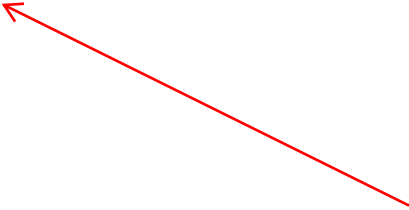
Calculate the correlation coefficient between X and Pounds, if the data is a sample.

- 0.377
 - 0.344
 - 0.333
 - 0.322
- _____ 21. Using data on X and Pounds again. What is the slope of the trend line when Pounds is the explanatory variable?
- 0.1149
 - 0.1349
 - 0.1349
 - 0.1449
- _____ 22. Using data on X and Pounds again. What is your forecast for X when Pounds is 95.
- 80.01
 - 80.71
 - 80.87
 - 81.01
- _____ 23. Using data on X and Pounds again. Calculate the sample covariance.
- 50.53
 - 50.63
 - 50.73
 - 50.83

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Answer Section

MULTIPLE CHOICE

- | | | |
|-------------------------|--------|------------------|
| 1. ANS: B | PTS: 1 | REF: SECTION 2.3 |
| 2. ANS: D | PTS: 1 | REF: SECTION 2.3 |
| 3. ANS: C | PTS: 1 | REF: SECTION 2.3 |
| 4. ANS: C | PTS: 1 | REF: SECTION 2.3 |
| 5. ANS: D | PTS: 1 | REF: SECTION 2.3 |
| 6. ANS: D | PTS: 1 | REF: SECTION 2.3 |
| 7. ANS: B | PTS: 1 | REF: SECTION 2.3 |
| 8. ANS: D | PTS: 1 | REF: SECTION 2.3 |
| 9. ANS: D | PTS: 1 | REF: SECTION 2.5 |
| 10. ANS: A | PTS: 1 | REF: SECTION 2.5 |
| 11. ANS: D | PTS: 1 | REF: SECTION 2.5 |
| 12. ANS: A | PTS: 1 | REF: SECTION 4.1 |
| 13. ANS: B | PTS: 1 | REF: SECTION 4.1 |
| 14. ANS: C | PTS: 1 | REF: SECTION 4.1 |
| 15. ANS: D | PTS: 1 | REF: SECTION 4.1 |
| 16. ANS: D | PTS: 1 | REF: SECTION 4.2 |
| 17. ANS: D | PTS: 1 | REF: SECTION 4.2 |
| 18. ANS: B D | PTS: 1 | REF: SECTION 4.4 |
| 19. ANS: C | PTS: 1 | REF: SECTION 4.4 |
| 20. ANS: A | PTS: 1 | |
| 21. ANS: D | PTS: 1 | |
| 22. ANS: C B | PTS: 1 | |
| 23. ANS: D | PTS: 1 | |



correct answer is: 66.
You have to adjust the population
covariance: 57.75
with*(8/7) to make it the sample
covariance. All answers were counted
as correct.