

ALEKS® Worksheet

Tina DeLuca - Worksheet #10 - 02/18/2013 9:36 AM
Introduction to Statistics / Math 13 - Spring 2013 – 41671 (Prof. Buchwald)

Review Questions:

1. Find both the x -intercept and the y -intercept of the line given by the equation

$$7.9x - 7.1y + 9.9 = 0.$$

Round your answers to 2 decimal places.

2. The following are the annual incomes (in thousands of dollars) for 25 randomly chosen, U.S. adults employed full-time:

29, 32, 32, 34, 34, 38, 39, 39, 39, 39, 40, 42, 42, 42, 44, 44, 47, 47, 50, 51, 54, 56, 84, 90, 108.

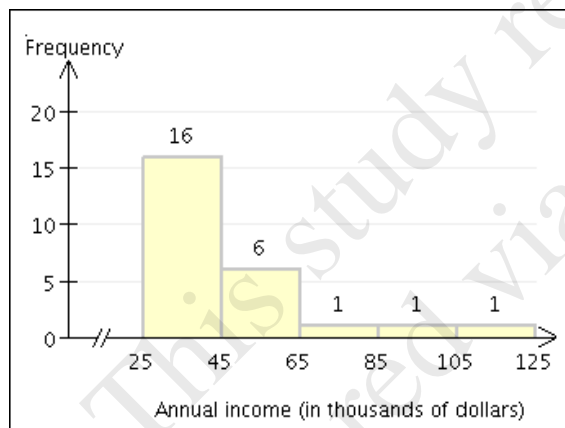


Figure 1

- (a) For these data, which measures of central tendency take more than one value? Choose all that apply.

1. Mean
2. Median
3. Mode
4. None of these measures

- (b) Suppose that the measurement 29 (the smallest measurement in the data set) were replaced by 9. Which measures of central tendency would be affected by the change? Choose all that apply.

1. Mean
2. Median
3. Mode
4. None of these measures

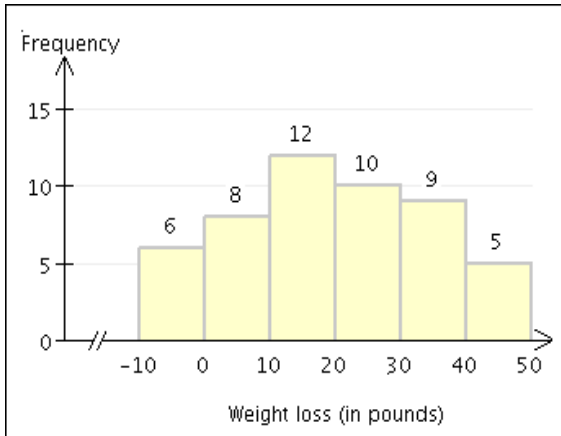
- (c) Suppose that, starting with the original data set, the largest measurement were removed. Which measures of central tendency would be changed from those of the original data set? Choose all that apply.

1. Mean
2. Median
3. Mode
4. None of these measures

- (d) Which of the following best describes the distribution of the original data? Choose only one.

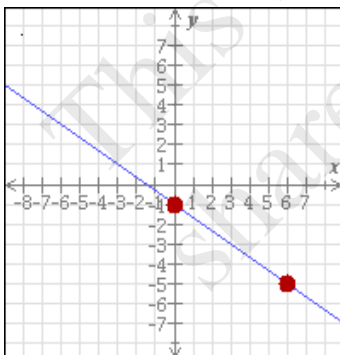
1. Negatively skewed
2. Positively skewed
3. Roughly symmetrical

3. Weight Away, a company that sells weight-loss plans, often advertises the effectiveness of its plans by highlighting the stories of a few clients who have lost extraordinary amounts of weight. To get a better indicator of the general effectiveness of the plans, we asked Weight Away to send us information about "typical" clients. Weight Away mailed us a brochure with the following histogram, which displays the weight loss (in pounds) over the past month for a sample of 50 Weight Away clients. (Note that a negative value for weight loss represents a weight gain.)



Based on the histogram, find the proportion of weight loss values in the sample that are greater than or equal to 10 pounds. Write your answer as a decimal, and do not round your answer.

4. Write an equation of the line below.



5. Which of the following variables are best thought of as continuous, which discrete? Indicate your choice for each by circling the appropriate answer.

(a) The number of defective compact discs in a batch of 500 discs.

Discrete Continuous

(b) The number of your fellow classmates who have used the World Wide Web for information on Seasonal Affective Disorder.

Discrete Continuous

(c) The number of participants in a study who describe themselves as "perfectionistic".

Discrete Continuous

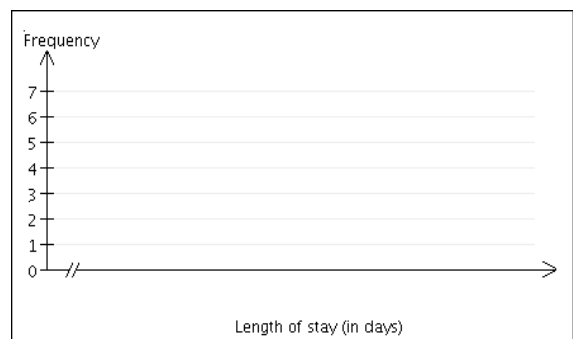
(d) The lifetime, in hours, of a 100-watt light bulb manufactured by Northington Industries.

Discrete Continuous

6. The following are the lengths of stay (in days) for a random sample of 21 patients discharged from a particular hospital:

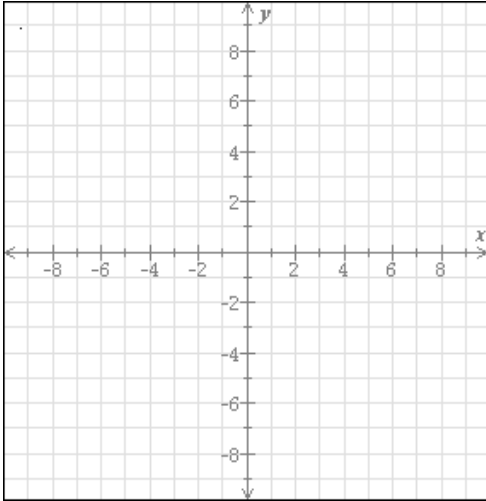
13, 9, 5, 11, 6, 3, 12, 10, 11, 7, 3, 9, 5, 12, 9, 12, 12, 8, 8, 8, 4.

Draw the frequency polygon for these data using an initial class boundary of 2.5 and a class width of 2. Note that you can add or remove classes from the figure. Label each class with its midpoint.



7. Graph the line.

$$y = -\frac{1}{3}x - 1$$

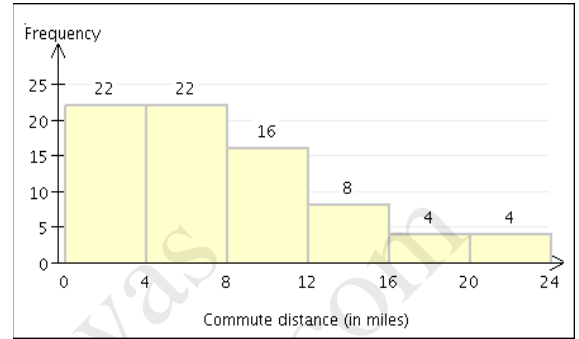


8. For each of the variables described below, indicate whether it is a quantitative or a categorical (qualitative) variable. Also, indicate the level of measurement for the variable: nominal, ordinal, interval, or ratio. Make sure your responses are the most specific possible.

Indicate your choice for each by circling the appropriate answer.

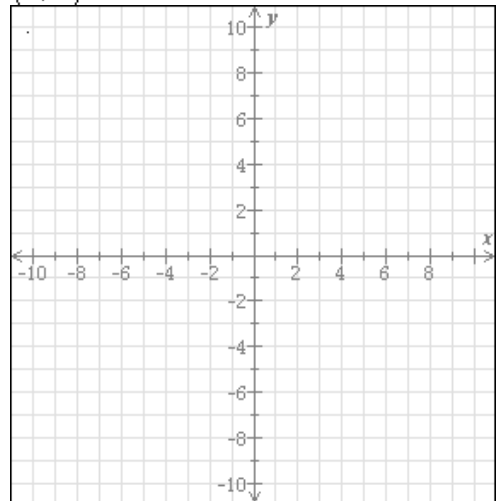
Variable	Type of variable	Level of measurement
(a) Medal won in a recent race (gold, silver, bronze, or none)	Quantitative Categorical	Nominal Ordinal Interval Ratio
(b) Name of cell phone service provider	Quantitative Categorical	Nominal Ordinal Interval Ratio
(c) Temperature (in degrees Fahrenheit)	Quantitative Categorical	Nominal Ordinal Interval Ratio

9. Students at a major university in Southern California are complaining of a serious housing crunch. Many of the university's students, they say, have to commute too far to school, and university officials should build more housing near campus. The officials' response is to perform a study. The study, reported in the school newspaper, features the following histogram summarizing the commute distances for a sample of 76 students at the university:

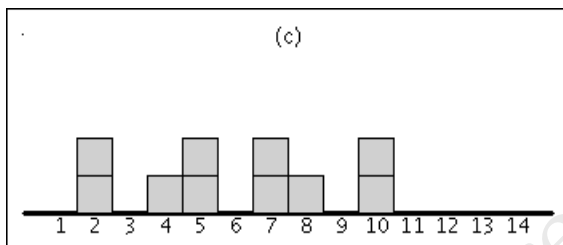
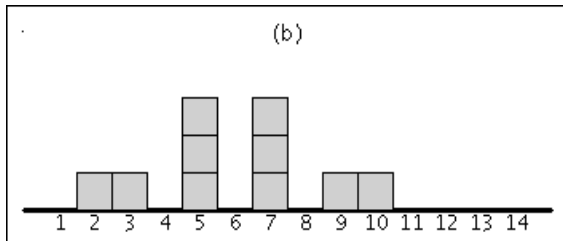
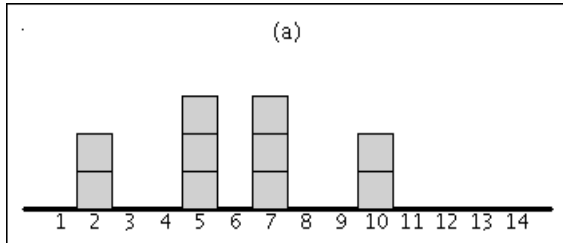


Based on the histogram, estimate the mean commute distance (in miles) for the students in the sample. Carry your intermediate computations to at least four decimal places, and round your answer to at least one decimal place.

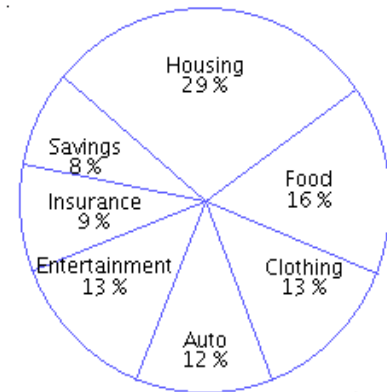
10. Graph the line with slope $-\frac{3}{4}$ passing through the point $(5, 4)$.



11. Three distributions, labeled (a), (b), and (c), are represented below by their histograms. Each distribution is symmetrical and is made of 10 measurements. Without performing any calculations, order their respective standard deviations σ_a , σ_b , and σ_c .

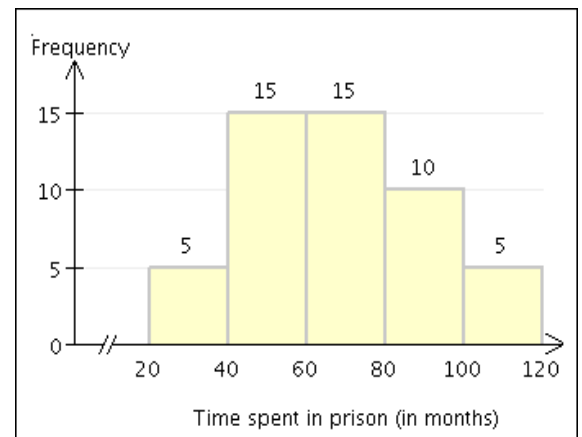


12. The pie chart below shows how the total annual income for a certain family is spent. If the total annual income is \$120,000, what amount is budgeted for Auto and Entertainment combined?



Ready to Learn Questions:

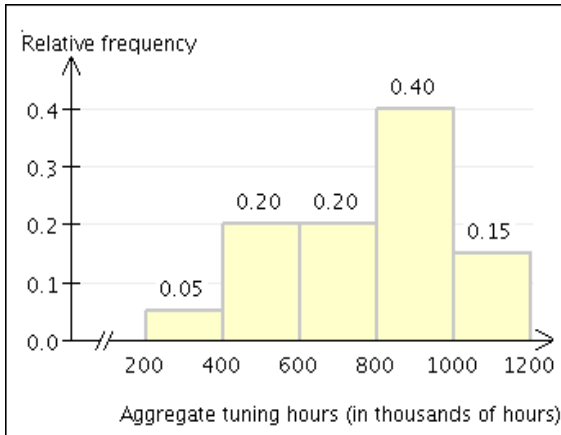
13. A sociologist studying the justice system has just written paper detailing her findings after examining the records thousands of inmates. Among other things, she looked the time spent in prison by inmates who had been sentenced to 5–10 years for a felony conviction. The histogram below, which appears in her paper, summarizes the time spent in prison for each of 50 such inmates.



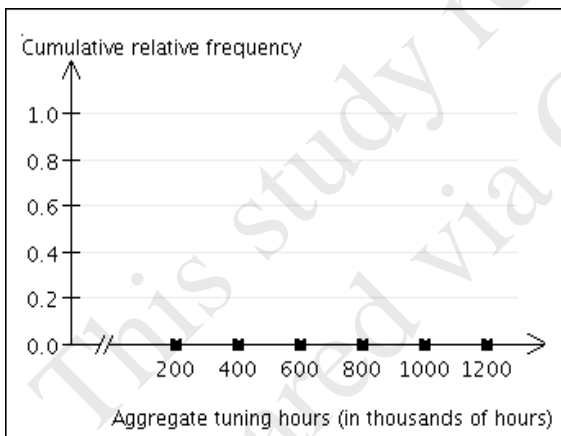
Based on this histogram, estimate the standard deviation of the sample of 50 prison terms. Carry your intermediate computations to at least four decimal places, and round your answer to at least one decimal place.

(If necessary, consult a list of formulas.)

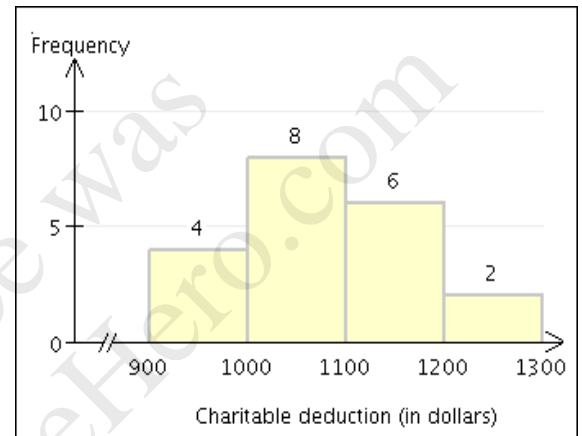
14. Accu-Rating has just released its webcast report for last month. The report details the aggregate tuning hours for each of the top 20 radio stations broadcast over the web. (The aggregate tuning hours for a station is the sum total of all hours that listeners tuned to the station.) The report displays the following histogram:



Based on this histogram, draw the ogive (the cumulative relative frequency polygon) for the Accu-Rating data.



15. The Internal Revenue Service (IRS) determines which income tax returns to audit by looking at, among other things, whether there are any unusual deductions claim on the return. Last year, charitable deductions for a fam of four earning between \$50,000 and \$55,000 averaged \$1,025, with a standard deviation of \$150. The IRS wishes to know whether the standard deviation this year is still around \$150. To determine this, 20 income tax returns for families of four earning between \$50,000 and \$55,000 were randomly selected from t year's tax filings. The charitable deductions claimed on returns are summarized in the following histogram:

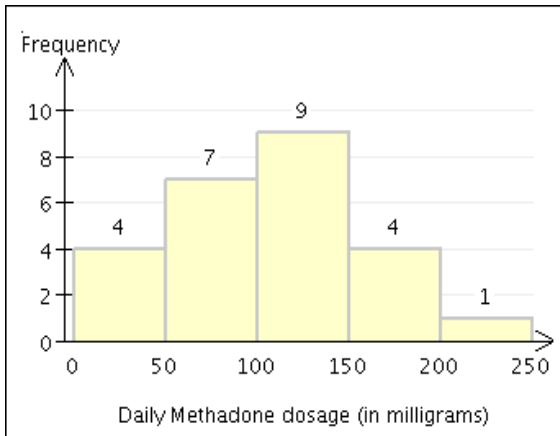


Based on this histogram, estimate the standard deviativ of the sample of 20 deduction amounts. Carry your intermediate computations to at least four decimal place and round your answer to at least one decimal place.

(If necessary, consult a list of formulas.)

16. Methadone is a synthetic drug whose effect on the body is similar to that of morphine and heroin. Methadone has been used to help people control their addictions to these other drugs. Recently, the governor of Florida vetoed a million-dollar appropriation for several Methadone clinics in the state.

Had Methadone use gotten out of hand? The following is a histogram that summarizes information from a study of 25 Florida Methadone clinic patients. (Florida's projected mean daily dosage per Methadone clinic patient was about 100 milligrams.)



Based on the histogram, draw the ogive (the cumulative relative frequency polygon) for the data from the study.

