

Exam1 for STA291, Fall 2009 Section 007, 008, and 009.

NAME Solutions

SECTION _____

- Problem 1 _____ / 4
- Problem 2 _____ / 4
- Problem 3 _____ / 4
- Problem 4 _____ / 4
- Problem 5 _____ / 4
- Problem 6 _____ / 4
- Problem 7 _____ / 4
- Problem 8 _____ / 4
- Problem 9 _____ / 4
- Problem 10 _____ / 4
- TOTAL _____ / 40
- Problem 11 _____ / 20
- Problem 12 _____ / 10
- Problem 13
 - (a) _____ / 5
 - (b) _____ / 5
- Problem 14
 - (a) _____ / 2.5
 - (b) _____ / 2.5
 - (c) _____ / 2.5
 - (d) _____ / 2.5
- Problem 15 _____ / 10
- TOTAL _____ / 100

Multiple Choices

_____ 1. A company has developed a new computer sound card whose average lifetime is unknown. In order to estimate this average, 200 sound cards are randomly selected from a large production line and tested; their average lifetime is found to be 5 years. The 5 years represents a:

- a. parameter.
- b. statistic.
- c. sample.
- d. population.

_____ 2. A summary measure that is computed from a population is called a:

- a. sample.
- b. statistic.
- c. population.
- d. parameter.

_____ 3. The process of using sample statistics to draw conclusions about population parameters is called:

- a. finding the significance level.
- b. calculating descriptive statistics.
- c. doing inferential statistics.
- d. calculating the confidence level.

_____ 4. For what type of data are frequencies the only calculations that can be done?

- a. Interval data
- b. Nominal data
- c. Ordinal data
- d. None of these choices.

_____ 5. Which situation identifies when to use pie charts and/or bar charts?

- a. You want to describe a single set of data.
- b. Your data is nominal.
- c. You want to show the number or the percentage of individuals in each category.
- d. All of these choices are true.

_____ 6. Which of the following statements about histograms is false?

- a. The intervals of a histogram do not overlap.
- b. Every observation is assigned to one and only one class in a histogram.
- c. The intervals of a histogram are equally wide.
- d. None of these choices.

- _____ 7. The relative frequency of a class in a histogram is computed by
- a. dividing the frequency of the class by the number of classes.
 - b. dividing the frequency of the class by the class width.
 - c. dividing the frequency of the class by the total of all frequencies.
 - d. None of these choices.

- _____ 8. 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>Gender</i>	<i>GPA</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. A higher percentage of females have GPAs over 3.0, compared to males.
 - b. A lower percentage of females have GPAs over 3.0, compared to males.
 - c. Females and males each have the same percentage of GPAs over 3.0.
 - d. You cannot compare male and female GPAs because the total number in each group is not the same.
- _____ 9. Which of these measures of central location is sensitive to outliers?
- a. The mean
 - b. The median
 - c. The mode
 - d. All of these choices are true.
- _____ 10. Which of the following types of samples is almost always biased?
- a. Simple random samples.
 - b. Stratified random samples.
 - c. Cluster samples.
 - d. Self-selected samples.

Short Answers

11. We have the following observations.

~~25.1~~, ~~48.4~~, ~~44.0~~, ~~21.5~~, ~~18.7~~, ~~19.6~~, ~~49.9~~, 30.1, ~~36.2~~, ~~24.4~~, ~~45.3~~, 34.7, ~~39.0~~, ~~17.1~~, ~~27.2~~, ~~202.4~~

Compute the mean and median. Then determine that the distribution is right skewed, left skewed, or symmetric?

$$\text{mean} = 42.725$$

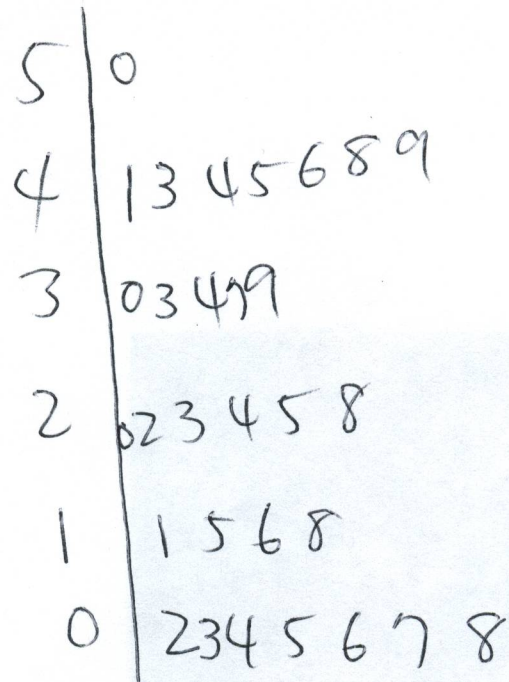
$$\text{Index} = \frac{(16+1)}{2} = 8.5$$

$$\text{median} = \frac{30.1 + 34.7}{2} = 32.4$$

right skewed

12. Draw the stem and leaf plot of the following observations:

~~11, 44, 41, 39, 4, 15, 6, 16, 23, 5, 46, 22, 18, 33, 37, 50, 48, 34, 8, 30, 2, 25, 40, 20, 45, 24, 43, 8, 28, 7~~



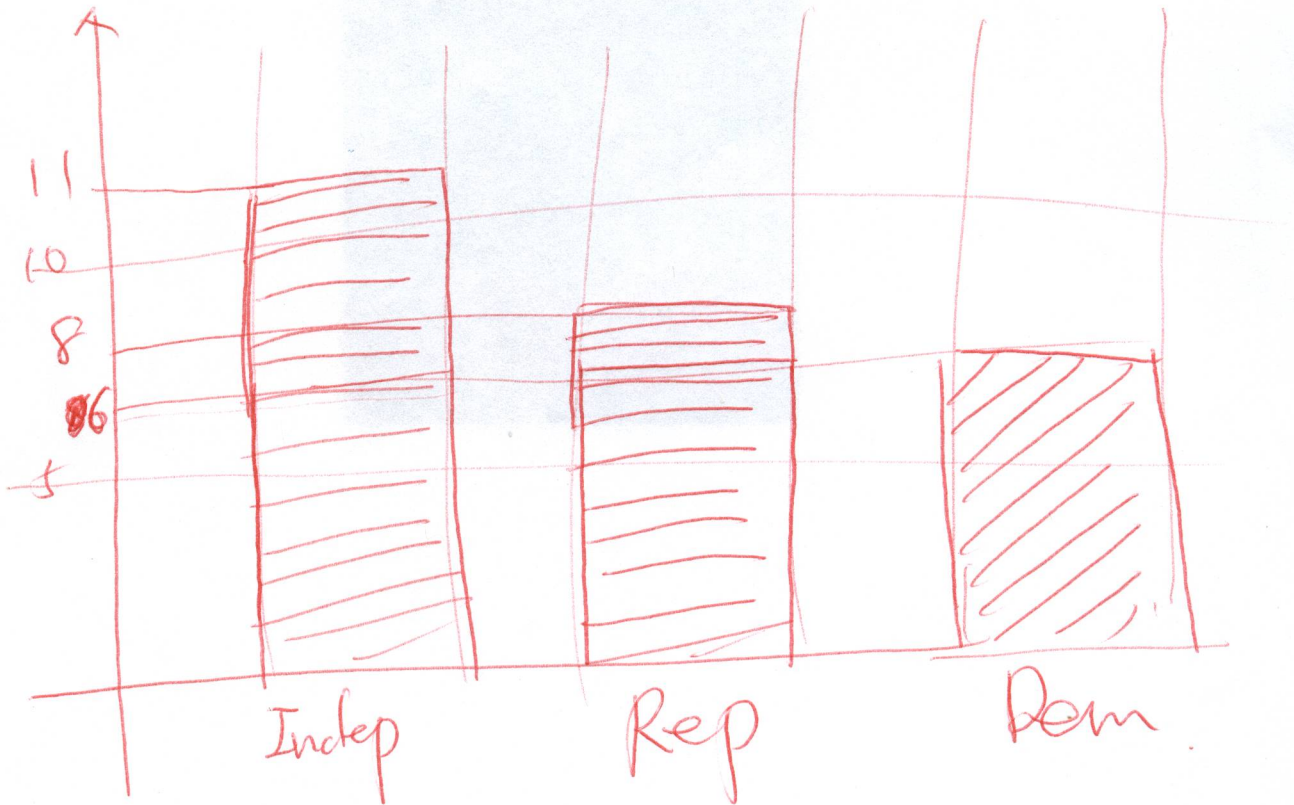
012 means 2 ~~2~~

13. Twenty-five voters participating in a recent election exit poll in Minnesota were asked to state their political party affiliation. Coding the data 1 for Republican, 2 for Democrat, and 3 for Independent, the data collected were as follows: 3, 1, 2, 3, 1, 3, 3, 2, 1, 3, 3, 2, 1, 1, 3, 2, 3, 1, 3, 2, 3, 2, 1, 1, and 3.

(a) Develop a frequency distribution.

	freq
Rep	8
Dem	6
Indep	11
total	25

(a) Develop a bar chart.



14. HR directors. A business magazine mailed a questionnaire to the human resources directors of all Fortune 500 companies, and received responses from 25% of them. Those responding reported that they did not find that such surveys intruded significantly on their workday.

Identify the following items.

(a) Population

Human Resources Directors of all Fortune 500 Companies

(b) Population parameter of interest

proportion who don't feel surveys intruded significantly their work

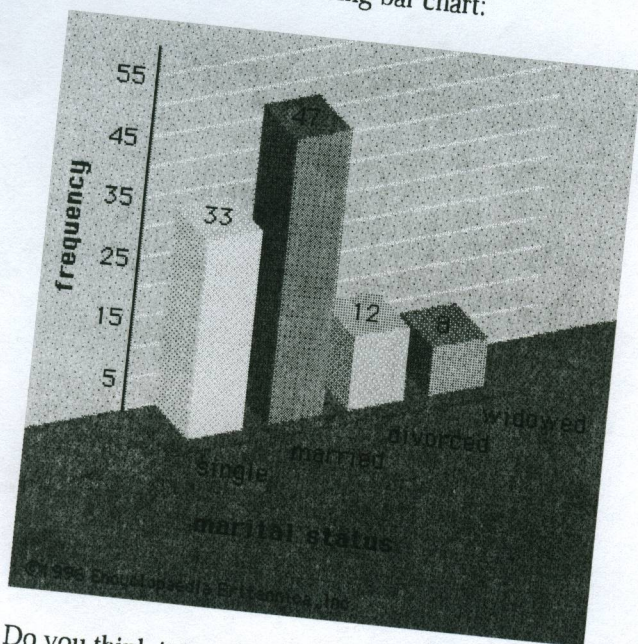
(c) Sample

25% of who responded

(d) Sampling method

Questionnaire mailed

15. Consider the following bar chart:



Do you think it is a good graphical descriptive statistics? Why? Please state at least three reasons.

No

- ① It's angled so hard to see the proportions
- ② the freq is not proportional to the volume since it's 3D
- ③ They use unnee. colors for (the more mk less info)
- ④ Not ordered correctly