
*Problem Set for Unit 1:
Representing and Describing Data
Partial Answers*

1. Fill in the blank with *categorical*, *quantitative discrete* or *quantitative continuous*.
 - (a) categorical
 - (b) quantitative continuous.
 - (c) quantitative discrete.
 - (d) categorical (binary).
 - (e) quantitative discrete
 - (f) categorical (binary)
 - (g) quantitative continuous
2. For each graph type below, describe the data type it would be used to represent. The first one is done for you.

Graph Type	Data Type
Bar Graph	One-variable categorical or discrete numerical
Circle graph	One-variable categorical
Histogram	One-variable continuous numerical (quantitative)
Pictograph	One-variable categorical
Scatterplot	Two-variable numerical (quantitative)
Stem-and-leaf plot	One-variable (maybe two) discrete numerical

3. In a recent survey, 40 students were asked how far they travel between home and school each day.
 - (a) Quantitative Continuous
 - (b)
 - (c) Complete the frequency distributions.

Interval	Frequency	Relative Frequency	Cumulative Relative Frequency
[0, 5)	12	0.3	0.3
[5, 10)	20	0.5	0.8
[10, 15)	4	0.1	0.9
[15, 20)	2	0.05	0.95
[20, 25)	2	0.05	1.00

- (d) 15
- (e) 70%
- (f) 5 and 10 miles (includes 5 but up to not including 10.)

4. Discussion

5. This is NOT appropriate *statistical* presentation of the data because

- The sum of the individual percents do not add to 100%
- The categories are not disjoint.

A circle graph is appropriate for categorical data that can be interpreted as parts to a whole. i.e the data must be categorical, the categories cannot overlap and the sum of the data in all the categories must represent the total amount of data.

6. The histogram of test scores of all students who took a certain test is given below:

- (a) Binmodal.
- (b) 42
- (c) 8
- (d) 18
- (e) The highest score cannot be precisely determined only that it is at least 90 but less than 100.
- (f) 47.5%

7. The following scatterplot records the ages of 20 couples applying for a marriage license in Cumberland County, Pennsylvania June and July 1993.

- (a) Yes there appears to be a positive association, that is the older the wife is the older the husband tends to be.
- (b) The husband and wife are approximately the same age.
- (c) Husbands tend to be older than their wives
- (d) The point is (45, 60), that is the wife is 45 years old and the husband is 60 years old. The husband is about 15 years older than his wife.

8. The graph below displays the breakdown by percent of Cerritos College enrollment by ethnicity for Fall 2006.

- (a) Categorical
- (b) According to this information, fill in the blanks
- (c) 4
- (d) 50% or half
- (e) About 1590
- (f) NO, this is not a correct statement. "Skewed left" is a description for a distribution of quantitative data not categorical data, since categorical data can be rearranged without losing its meaning.
- (g) Yes a circle graph would be an appropriate representation of this data since the categories are non-overlapping and make up the entire population. (If a person can be in multiple categories then there would be a problem with a circle graph representation.)

9. The Sidekicks, a soccer team, played 20 games during the 2005 season. The number of goals scored per game, in the order in which the games were played is given below.

0 1 1 0 2 1 0 0 1 3 1 2 3 2 1 4 2 3 4 5

10. The age at inauguration (in years) of the U.S. presidents from Washington to Clinton is given in the graph below.

- (a) Quantitative Discrete
- (b) Histogram
- (c) Symmetric unimodal (bell-shaped)
- (d) Label the axes of the graph.
- (e) 42
- (f) 20%
- (g) 7.5%
- (h) We cannot tell T. Roosevelt's exact age at the time he was inaugurated, only that he was at least 40 years old and younger than 45 years old.

11. The life spans of the 35 U.S. presidents from George Washington to Lyndon Johnson are listed below:

- (a) Form a stem-and-leaf plot of these data. Be sure to include a key.
- (b) Symmetric unimodal (bell-shaped).
- (c) About 14.3%
- (d) 20%
- (e) Discussion

12.

- (a) Discussion
- (b) Discussion

Also do the following problems from your text: See answers in text.

8 th Edition of Text	7 th edition of Text
Page 455 # 5	Page 445 # 7
Page 456 # 9 & 10	Page 446 # 11 & 12
Page 461 # 11	Get from 8 th edition
Page 482 # 10	Page 493 # 3