

**Student:** Benny Jones  
**Date:** 7/6/16

**Instructor:** Thara Lowndes  
**Course:** Math 101 -Summer 2016-Sec.  
953 (Choden)

**Assignment:** HW 10 (IChapter 5  
statistics)

1. A poll is conducted the day before a state election for Senator. There are only two candidates running for this office. The poll results show that 59% of the voters favor the Republican candidate, with a margin of error of 2 percentage points. Should the Republican expect to win? Why or why not?

Choose the correct answer below.

- ☐ A. The results suggest that the Republican is likely to win a solid majority because he or she will most likely get between 57% and 61% of the vote.
- ☐ B. The results suggest that the Republican is just as likely to win or lose the election because 59% is very close to 50%.
- ☐ C. The results suggest that the Republican is not likely to win a solid majority because, when the margin of error is taken into account, he or she will most likely not get the majority of the vote.

2. In a survey of 1,006 people, 695 (or 69%) said that they voted in a particular presidential election. The margin of error for this survey was 3 percentage points. However, actual voting records show that only 59% of all eligible voters actually did vote. Does this imply that people lied when they responded in the survey? Explain.

Choose the correct answer below.

- ☐ A. Based on the survey, the actual percentage of voters is expected to be between 66% and 72%, which does not include the 59% value based on actual voter results. If the survey was conducted properly, it is unlikely that its results would be so different from the actual results, implying either that respondents intentionally lied to appear favorable to the pollsters or that their memories were inaccurate.
- ☐ B. Based on the survey, when the margin of error is taken into account, the actual voter results are not unusual. Thus, the survey was conducted properly, and it does not imply that people lied when they responded to the survey.

3. What is the distinction between qualitative data and quantitative data? Give a few examples of each.

Choose the correct answer below.

- ☐ A. Quantitative data describe categories, while qualitative data represent counts or measures. Brand names of shoes in a consumer survey and eye colors are examples of quantitative data. Heights of students and quiz scores are examples of qualitative data.
- ☐ B. Qualitative data describe categories, while quantitative data represent counts or measures. Brand names of shoes in a consumer survey and eye colors are examples of quantitative data. Heights of students and quiz scores are examples of qualitative data.
- ☐ C. Quantitative data describe categories, while qualitative data represent counts or measures. Brand names of shoes in a consumer survey and eye colors are examples of qualitative data. Heights of students and quiz scores are examples of quantitative data.
- ☐ D. Qualitative data describe categories, while quantitative data represent counts or measures. Brand names of shoes in a consumer survey and eye colors are examples of qualitative data. Heights of students and quiz scores are examples of quantitative data.

4. Decide whether the following statement makes sense (or is clearly true) or does not make sense (or is clearly false). Explain your reasoning.

I was unable to make a bar chart, because the data categories were qualitative rather than quantitative.

Choose the correct answer below.

- ☐ A. The statement does not make sense because bar graphs are commonly used to show data when the categories are qualitative.
- ☐ B. The statement does not make sense because histograms are commonly used to show data when the categories are qualitative.
- ☐ C. The statement makes sense because bar graphs are commonly used to show data when the categories are quantitative.
- ☐ D. The statement makes sense because bar graphs are commonly used to show data when the categories are qualitative.

5. A professor records the following final grades in one course. Construct a frequency table for the grades.

A    A    A    B    B    B    B    B    B    B    B    C  
C    C    C    C    C    C    C    D    D    D    D    F

Complete the table.

(Type an integer or decimal rounded to the nearest tenth as needed.)

Grade	Frequency	Relative frequency	Cumulative frequency
A	<input type="text"/>	<input type="text"/> %	<input type="text"/>
B	<input type="text"/>	<input type="text"/> %	<input type="text"/>
C	<input type="text"/>	<input type="text"/> %	<input type="text"/>
D	<input type="text"/>	<input type="text"/> %	<input type="text"/>
F	<input type="text"/>	<input type="text"/> %	<input type="text"/>
Total	<input type="text"/>	1 = 100%	<input type="text"/>

6. Determine whether the data described are qualitative or quantitative.

The area codes (such as 617) of the telephones of survey subjects

Choose the correct answer below.

- ☐ quantitative
- ☐ qualitative

7. Determine whether the data described are qualitative or quantitative.

The area codes (such as 617) of the telephones of survey subjects

Choose the correct answer below.

- ☐ quantitative
- ☐ qualitative

8. Use 4-point bins (96 to 99, 92 to 95, etc.) to make a frequency table for the set of exam scores shown below. Include columns for relative frequency and cumulative frequency.

77 91 80 77 91 88 95 91 87 80 84 99 78 86 91 92 88 89 95 84

Complete the frequency table below.

Scores	Frequency	Relative Frequency	Cumulative Frequency
96 to 99	_____	_____ %	_____
92 to 95	_____	_____ %	_____
88 to 91	_____	_____ %	_____
84 to 87	_____	_____ %	_____
80 to 83	_____	_____ %	_____
76 to 79	_____	_____ %	_____
<b>Total</b>	_____	_____ %	_____

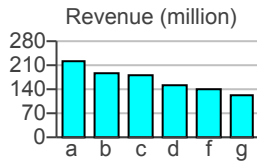
9. Graph the data in the following table using a bar graph.

**Corporation Revenues, 2001**

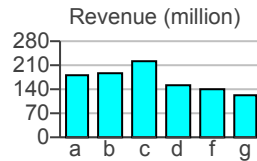
<b>Corporation</b>	a	b	c	d	f	g
<b>Revenue</b> (million \$)	220	186	179	154	142	123

Which graph is representative of the above data?

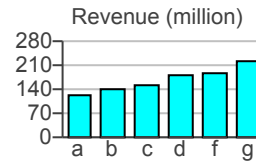
☐ A.



☐ B.



☐ C.

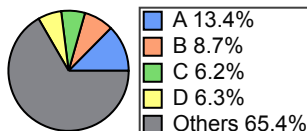


10. Construct a pie chart for the data set in the table to the right. The first step is to compute a percentage for each category in the data set. The data in the table represents the annual sales (in millions of dollars) of the leading chocolate brands.

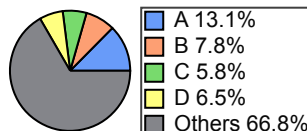
Company	Sales (\$ millions)
A	252
B	160
C	128
D	127
All others	1334

Choose the correct pie chart below.

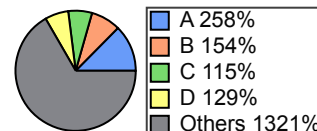
☐ A.



☐ B.



☐ C.

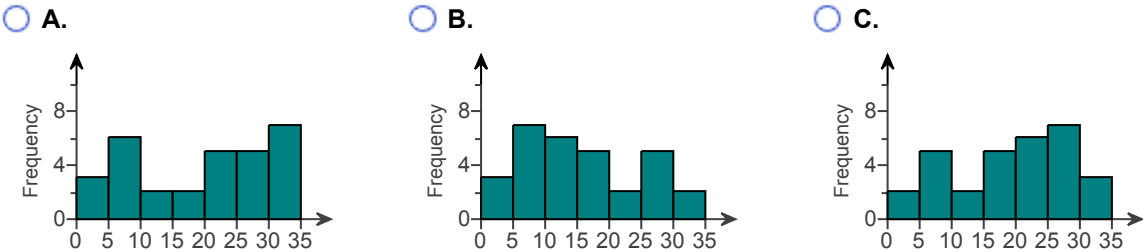


11. The following data show price-earnings ratios of 30 common stocks chosen at random from a particular stock exchange. Make a frequency table for these data using bins of 0-4, 5-9, and so on. Then draw a histogram to display the binned data.
- |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 3  | 9  | 14 | 18 | 24 | 14 | 5  | 7  | 25 | 7  |
| 13 | 26 | 15 | 8  | 11 | 1  | 16 | 17 | 25 | 26 |
| 5  | 4  | 10 | 19 | 6  | 23 | 12 | 33 | 30 | 25 |

Make a frequency table for these data using bins of 0-4, 5-9, and so on.

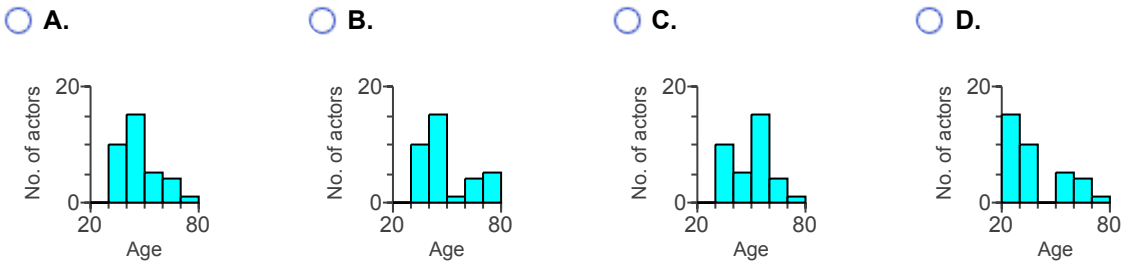
Bin	Frequency
0-4	
5-9	
10-14	
15-19	
20-24	
25-29	
30-34	

Draw a histogram to display the binned data. Choose the correct histogram below.



12. Use the frequency table for the ages of recent award-winning male actors at the time when they won their award to construct the corresponding histogram.
- <sup>1</sup> Click the icon to view the frequency table.

Choose the correct graph below.



1: Data Table

Age	No. of actors
20 – 29	0
30 – 39	10
40 – 49	15
50 – 59	5
60 – 69	4
70 – 79	1

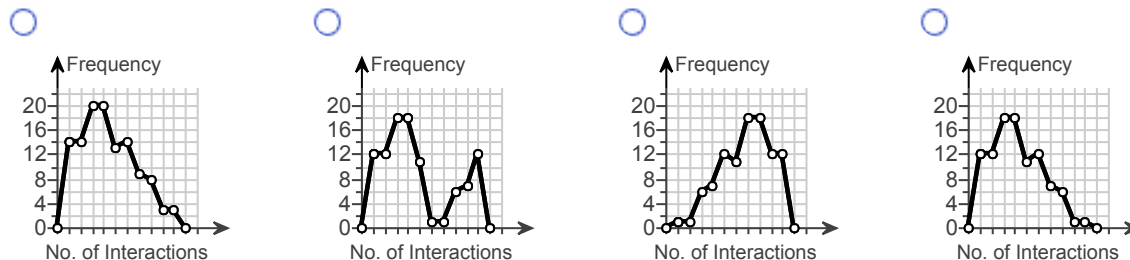
13. A professor had students keep track of their social interactions for a week. The number of social interactions over the week is shown in the following grouped frequency distribution. Construct a histogram and frequency polygon for the data.

	A	B	C	D	E	F	G	H	I	J
<b>Social Interactions</b>	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79
<b>Frequency</b>	12	12	18	18	11	12	7	6	1	1

- a. Select a histogram representing the given data frequency distribution.



- b. Select a polygon representing the given data frequency distribution.



14. The table to the right shows the vehicle count that was collected during a tour of a student parking lot.

- a. Use technology to make a frequency table for these data that includes both the relative and cumulative frequencies.  
 b. What is the sum of the frequencies?  
 c. What is the sum of the relative frequencies?  
 d. What is the final cumulative frequency?

Category of Car	Frequency
American cars	37
Japanese cars	33
English cars	5
Other European cars	18
Motorcycles	7

- a. Complete the frequency table below.

(Type integers or decimals.)

Category of Car	Frequency	Relative Frequency	Cumulative Frequency
American cars	37	_____ %	_____
Japanese cars	33	_____ %	_____
English cars	5	_____ %	_____
Other European cars	18	_____ %	_____
Motorcycles	7	_____ %	_____

- b. The sum of the frequencies is \_\_\_\_\_.
- c. The sum of the relative frequencies is \_\_\_\_\_ %.
- d. The final cumulative frequency is \_\_\_\_\_.