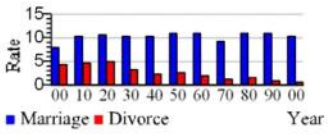
Student: _____	**Instructor:** Darryl Allen	**Assignment:** Chapter 2 Practice Exam A
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

1. The following table lists the marriage and divorce rates per 1000 people in a particular country for selected years since 1900. Construct a multiple bar graph of the data. Why do these data consist of marriage and divorce rates rather than total numbers of marriages and divorces? Comment on any trends that you observe in these rates, and give explanations for these trends.

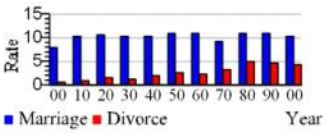
Year	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Marriage	10.2	10.9	11.0	9.3	11.0	11.0	10.2	10.5	10.6	10.5	7.9
Divorce	4.2	4.7	5.1	3.5	2.2	2.7	2.0	1.5	1.6	1.0	0.7

Construct a multiple bar graph of the data. Choose the correct graph below.

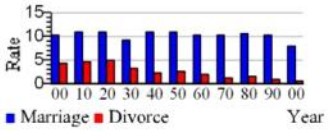
○A.



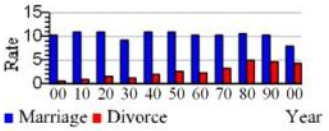
○B.



○C.



○D.



Why do these data consist of marriage and divorce rates rather than total numbers of marriages and divorces?

○A. There is no particular reason for using the rates of marriages and divorces over the total numbers of marriages and divorces. Either method is a valid way of showing marriage and divorce trends.

○B. The rates of marriages and divorces can be calculated using a small proportion of the population, whereas the total numbers of marriages and divorces requires information about the entire population, which is not possible to obtain.

○C. Since populations generally fluctuate, a bar graph depicting the total numbers of marriages and divorces may falsely suggest an increase or decrease in the proportions of marriages and divorces, even when the proportions are doing the opposite.

Comment on any trends that you observe in these rates, and give explanations for these trends.

○A. The marriage rate has remained relatively steady, while the divorce rate has been steadily increasing. This may be due to an easier divorce process or greater acceptance of divorce in the society, among other reasons.

○B. The marriage rate has remained relatively steady, while the divorce rate has been steadily decreasing. This may be due to a more difficult divorce process or lesser acceptance of divorce in the society, among other reasons.

○C. The marriage rate has been steadily decreasing, while the divorce rate has been steadily increasing. This may be due to a greater acceptance of people living together outside of marriage, as well as an easier divorce process, among other reasons.

Student: _____	**Instructor:** Darryl Allen	**Assignment:** Chapter 2 Practice Exam A
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

2. Construct one table that includes relative frequencies based on the frequency distributions shown below, then compare the amounts of tar in nonfiltered and filtered cigarettes. Do the cigarette filters appear to be effective?

Click the icon to view the frequency distributions.

Complete the relative frequency table below.

Tar (mg)	Relative Frequency (Nonfiltered)	Relative Frequency (Filtered)
5 – 10	☐ %	☐ %
11 – 15	☐ %	☐ %
16 – 21	☐ %	☐ %
22 – 27	☐ %	☐ %
28 – 33	☐ %	☐ %
34 – 39	☐ %	☐ %
40 – 45	☐ %	☐ %

(Simplify your answers.)

Do cigarette filters appear to be effective?

- A. No, because the relative frequencies for each are not substantially different.
- B. Yes, because the relative frequency of the higher tar classes is greater for nonfiltered cigarettes.
- C. No, because the relative frequency of the higher tar classes is greater for filtered cigarettes.
- D. This cannot be determined.

Frequency Distributions

Tar (mg) in Nonfiltered Cigarettes	Frequency	Tar (mg) in Filtered Cigarettes	Frequency
16 – 21	1	5 – 10	1
22 – 27	0	11 – 15	1
28 – 33	15	16 – 21	6
34 – 39	6	22 – 27	17
40 – 45	3		

Student: _____	**Instructor:** Darryl Allen	**Assignment:** Chapter 2 Practice Exam A
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

3. Listed below are blood groups of O, A, B, and AB of randomly selected blood donors. Construct a table summarizing the frequency distribution of these blood groups.

O	A	AB	O	A	AB	O	O	O	A
AB	A	A	A	A	AB	AB	A	A	B
B	O	O	A	AB	O	O	AB	A	AB
B	O	A	O	AB	A	AB	O	A	O

Complete the frequency distribution below.

Blood Group	Frequency
O	☐
A	☐
B	☐
AB	☐

Student: _____	**Instructor:** Darryl Allen	**Assignment:** Chapter 2 Practice Exam A
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

4. The graph to the right compares teaching salaries of women and men at private colleges and universities. What impression does the graph create? Does the graph depict the data fairly? If not, construct a graph that depicts the data fairly.

What impression does the graph create?

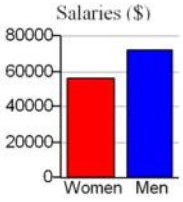
- ○A. The graph creates the impression that men have salaries that are more than twice the salaries of women.
- ○B. The graph creates the impression that women have salaries that are slightly higher than that of men.
- ○C. The graph creates the impression that men have salaries that are slightly higher than that of women.
- ○D. The graph creates the impression that men and women have approximately the same salaries.

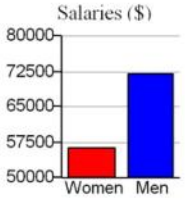
Does the graph depict the data fairly?

- ○A. Yes, because the vertical scale is appropriate for the data.
- ○B. No, because the data are two-dimensional measurements.
- ○C. Yes, because the bars accurately represent each average.
- ○D. No, because the vertical scale does not start at zero.

If the graph does not depict the data fairly, which graph below does?

○A.


○B.


○C.


○D. The graph depicts the data fairly

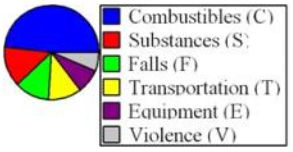
Student: _____	**Instructor:** Darryl Allen	**Assignment:** Chapter 2 Practice Exam A
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

5. After constructing a relative frequency distribution summarizing IQ scores of college students, what should be the sum of the relative frequencies?

Choose the correct answer below.

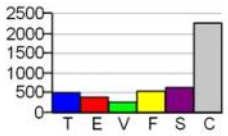
- ○A. If percentages are used, the sum should be 100%. If proportions are used, the sum should be 1.
- ○B. If percentages are used, the sum should be 1%. If proportions are used, the sum should be 100.
- ○C. If percentages are used, the sum should be 100%. If proportions are used, the sum should be 100.
- ○D. If percentages are used, the sum should be 0%. If proportions are used, the sum should be 0.

6. In a recent year, 4694 people were killed while working. Here is a breakdown of causes: combustibles (2256); substances (650); falls (562); transportation (534); equipment (396); violence (296). Use the data to construct a Pareto chart. Compare the Pareto chart to the pie chart. Which graph is more effective in showing the relative importance of the causes of work-related deaths?

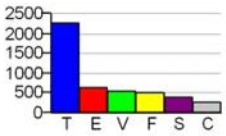


Choose the correct Pareto chart.

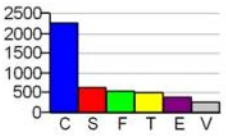
○A.



○B.



○C.



Which graph is more effective in showing the relative importance of the causes of work-related deaths?

- ○A. The pie chart is more effective.
- ○B. The Pareto chart is more effective.
- ○C. Neither one is effective.

7. Identify the class width, class midpoints, and class boundaries for the given frequency distribution.

Full data set

Height (inches)	Frequency	Height (inches)	Frequency
56.0-59.9	4	76.0-79.9	0
60.0-63.9	25	80.0-83.9	0
64.0-67.9	9	84.0-87.9	0
68.0-71.9	1	88.0-91.9	0
72.0-75.9	0	92.0-95.9	1

What is the class width?

☐

What are the class midpoints?

☐,☐,☐,☐,☐,☐,☐,☐,☐,☐,☐

(Use ascending order. Round to two decimal places as needed.)

What are the class boundaries?

☐,☐,☐,☐,☐,☐,☐,☐,☐,☐,☐,☐

(Use ascending order. Round to two decimal places as needed.)

8. Use the given qualitative data to construct the relative frequency distribution.

The 2190 people aboard a ship that sank include 416 male survivors, 1376 males who died, 260 female survivors, and 138 females who died.

Complete the relative frequency distribution below.

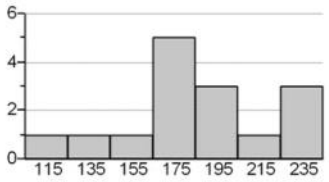
Category	Relative Frequency
Male survivors	☐%
Males who died	☐%
Female survivors	☐%
Females who died	☐%

(Round to one decimal place as needed.)

Student: _____	**Instructor:** Darryl Allen	**Assignment:** Chapter 2 Practice Exam A
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

9. The histogram to the right represents the weights (in pounds) of members of a certain high-school programming team.

How many team members are included in the histogram?



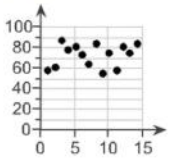
The histogram represents ☐ programming team members.

10. The data represents the actual high temperature for 14 consecutivedays. Use the 14 actual high temperatures to construct a frequency polygon. For the horizontal axis, use the midpoint values obtained from these class intervals: 50-59, 60-69, 70-79, 80-89.

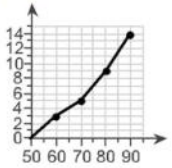
62	87	79
82	74	65
85	55	76
58	82	76
58	85	

Which graph represents a frequency polygon of the data?

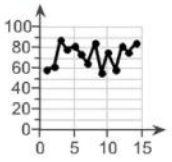
○A.



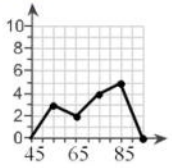
○B.



○C.



○D.



11. Refer to the accompanying data set and use the 25 home voltage measurements to construct a frequency distribution with five classes. Begin with a lower class limit of 127.0 volts, and use a class width of 0.2 volt. Does the result appear to have a normal distribution? Why or why not?

Click the icon to view the data.

Complete the frequency distribution below.

Voltage (volts)	Frequency
127.0 – ☐	☐
☐ – ☐	☐
☐ – ☐	☐
☐ – ☐	☐
☐ – ☐	☐

(Type integers or decimals rounded to the nearest tenth as needed.)

Does the result appear to have a normal distribution? Why or why not?

- ○A. Yes, because the frequencies are roughly equal across the voltage classes.
- ○B. No, because the frequencies are randomly distributed.
- ○C. No, because the frequencies are not equal across the voltage classes.
- ○D. Yes, because the frequencies start low, reach a maximum, then become low again, and are roughly symmetric about the maximum frequency.
- ○E. No, because the frequencies are roughly equal across the voltage classes.

More Info

Voltage Measurements From a Home — Full data set

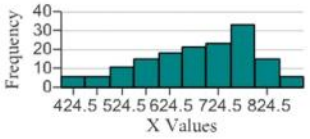
Day	Home (volts)	Day	Home (volts)	Day	Home (volts)	Day	Home (volts)
1	127.3	8	127.3	15	127.7	22	127.8
2	127.1	9	127.0	16	127.8	23	127.9
3	127.4	10	127.7	17	127.2	24	127.3
4	127.7	11	127.4	18	127.2	25	127.5
5	127.8	12	127.8	19	127.1		
6	127.1	13	127.4	20	127.9		
7	127.0	14	127.5	21	127.6		

12. The table below shows the frequency distribution of FICO credit rating scores. Use the frequency distribution to construct a histogram. Does the result appear to be a normal distribution?

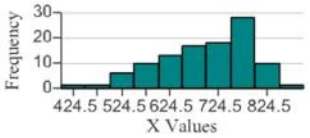
FICO Score	Frequency
400 – 449	1
450 – 499	1
500 – 549	6
550 – 599	10
600 – 649	13
650 – 699	17
700 – 749	18
750 – 799	28
800 – 849	10
850 – 899	1

Choose the correct histogram below.

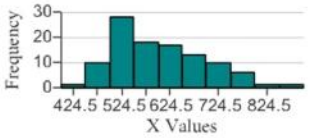
A.



B.



C.



Does the result appear to be a normal distribution?

A. Yes, because the histogram is approximately normal.

B. No, because the histogram has no obvious maximum.

C. No, because the histogram is not symmetric.

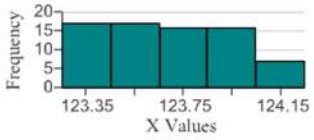
D. No, because the histogram is approximately uniform.

13. The table below shows the frequency distribution of home voltage measurements taken on 48 consecutive days. Use the frequency distribution to construct a histogram. Does the result appear to be a normal distribution?

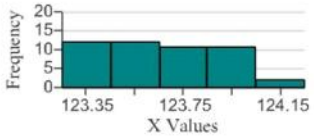
Home Voltage Class	Frequency
123.3 – 123.4	12
123.5 – 123.6	12
123.7 – 123.8	11
123.9 – 124.0	11
124.1 – 124.2	2

Construct the histogram. Choose the correct graph below.

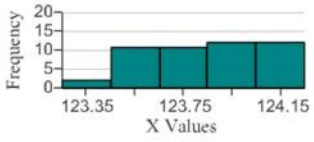
○A.



○B.



○C.



Does the result appear to be a normal distribution?

○A. No, because the histogram has an obvious maximum.

○B. No, because the histogram is not approximately symmetric.

○C. Yes, because the histogram appears to be approximately normal.

○D. No, because the histogram has no obvious minimum.

14. What are some advantages of a dotplot over a frequency polygon?

Choose the correct answer below.

○A. A dotplot draws attention to more important categories.

○B. A dotplot allows you to identify the original data values.

○C. A dotplot allows you to determine if there is a relationship between the two variables.

○D. A dotplot allows you to see the shape of a data set.

15. The data represents the body mass index (BMI) values for 20 females. Construct a frequency distribution beginning with a lower class limit of 15.0 and use a class width of 6.0. Does the frequency distribution appear to be roughly a normal distribution?

17.7	33.5	26.7	22.3	21.4
29.9	25.8	18.3	27.1	23.5
19.2	21.4	24.3	37.7	31.4
28.5	44.9	30.8	29.9	23.7

Body Mass Index	Frequency	Body Mass Index	Frequency
15.0-20.9		33.0-38.9	
21.0-26.9		39.0-44.9	
27.0-32.9			

Does the frequency distribution appear to be roughly a normal distribution?

- ○A. No, the distribution is not symmetric and the frequencies do not start off low.
- ○B. No, although the frequencies start low, increase to some maximum, then decrease, the distribution is not symmetric.
- ○C. No, although the distribution is approximately symmetric, the frequencies do not start low, then increase to some maximum frequency, then decrease.
- ○D. Yes, all of the requirements are met.

16. The *Washington Post* illustrated diminishing purchase power of the dollar in five different presidential administrations using five different $1 bill of different sizes. The Eisenhower era was represented by a $1 with purchasing power of $1, and the subsequent administrations were represented with smaller 1$ bills corresponding to lower amounts of purchasing power. What is wrong with this illustration?

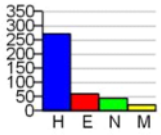
Choose the correct answer below.

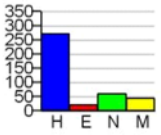
- ○A. Images of dollar bills are three-dimensional, but amounts of purchasing power are two-dimensional.
- ○B. Images of dollar bills are two-dimensional, but amounts of purchasing power are three-dimensional.
- ○C. Images of dollar bills are three-dimensional, but amounts of purchasing power are one-dimensional.
- ○D. Images of dollar bills are two-dimensional, but amounts of purchasing power are one-dimensional.

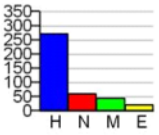
17. A study was conducted to determine how people get jobs. The table lists data from 400 randomly selected subjects. Construct a Pareto chart that corresponds to the given data. If someone would like to get a job, what seems to be the most effective approach?

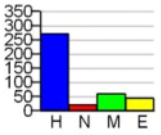
Job Sources	Frequency
Help-wanted ads (H)	273
Executive search firms (E)	24
Networking (N)	61
Mass mailing (M)	42

Choose the correct Pareto chart.

○A. 

○B. 

○C. 

○D. 

If someone would like to get a job, what seems to be the most effective approach?

○A. Networking (N)

○B. Mass mailing (M)

○C. Executive search firms (E)

○D. Help-wanted ads (H)

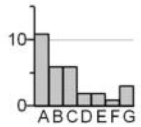
Student: _____	**Instructor:** Darryl Allen	**Assignment:** Chapter 2 Practice Exam A
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

18. The frequency distribution below represents frequencies of actual low temperatures recorded during the course of a 31-day month. Use the frequency distribution to construct a histogram. Do the data appear to have a distribution that is approximately normal?

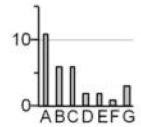
Class		Frequency
A	39 – 44	1
B	45 – 50	2
C	51 – 56	6
D	57 – 62	11
E	63 – 68	6
F	69 – 74	2
G	75 – 80	3

Choose the correct histogram below.

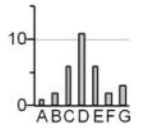
○A.



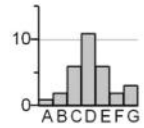
○B.



○C.



○D.



Do the data appear to have a distribution that is approximately normal?

○A. No, it is not at all symmetric.

○B. No, it is completely erratic.

○C. Yes, it is approximately normal.

○D. No, it is approximately uniform.

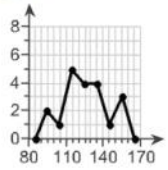
19. The data represents the heights of eruptions by a geyser.

Use the heights to construct an ogive. For the horizontal axis, use these class boundaries: 89.5, 99.5, 109.5, 119.5, 129.5, 139.5, 149.5, 159.5. How many eruptions were below 130 ft?

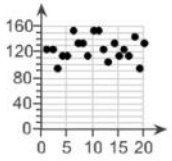
122	123	93	115
116	158	136	138
115	152	150	120
100	130	110	120
110	140	90	130

Construct an ogive.

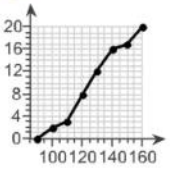
○A.



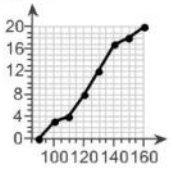
○B.



○C.



○D.



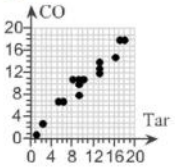
How many eruptions were below 130 ft?

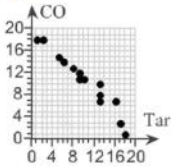
20. Construct a scatter diagram using the data table to the right. This data is from a study comparing the amount of tar and carbon monoxide (CO) in cigarettes. Use tar for the horizontal scale and use carbon monoxide (CO) for the vertical scale. Determine whether there appears to be a relationship between cigarette tar and CO.

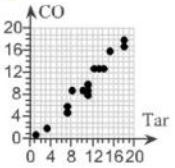
Full data set

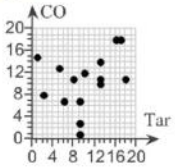
Tar	CO	Tar	CO	Tar	CO
16	15	10	11	2	3
17	18	8	11	9	8
1	1	13	12	6	7
13	13	18	18	9	11
5	7	13	14	9	10

Construct a scatter diagram.

○A. 

○B. 

○C. 

○D. 

Is there a relationship between cigarette tar and CO?

○A. No, there appears to be no relationship.

○B. Yes, as the amount of tar increases the amount of carbon monoxide also increases.

○C. Yes, as the amount of tar increases the amount of carbon monoxide decreases.

Student: _____	**Instructor:** Darryl Allen	**Assignment:** Chapter 2 Practice Exam A
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

1. C
   C
   B

2. 0
   4
   0
   4
   4
   24
   0
   68
   60
   0
   24
   0
   12
   0
   B

3. 13
   14
   3
   10

4. A
   D
   B

5. A

6. C
   B

7. 4
57.95
61.95
65.95
69.95
73.95
77.95
81.95
85.95
89.95
93.95
55.95
59.95
63.95
67.95
71.95
75.95
79.95
83.95
87.95
91.95
95.95

8. 19.0
62.8
11.9
6.3

9. 15

10. D

11. 127.1
5
127.2
127.3
5
127.4
127.5
5
127.6
127.7
4
127.8
127.9
6
E

12. B
C

13. B
B

14. B

15. 3
8
6
2
1
B

16. D

17. C
D

18. D
C

19. C
12

20. A
B