Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

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

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

Full data set

Daily Low Temperature (°F)	Frequency	Daily Low Temperature (°F)	Frequency
32-34	1	44-46	7
35-37	3	47-49	7
38-40	5	50-52	1
41-43	11		

What is the class width?

☐ (Type an integer or a decimal.)

What are the class midpoints?

☐,☐,☐,☐,☐,☐,☐
(Use ascending order. Type integers or decimals.)

What are the class boundaries?

☐,☐,☐,☐,☐,☐,☐,☐
(Use ascending order. Type integers or decimals.)

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

3. 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.)

4. Does the frequency distribution appear to have a normal distribution using a strict interpretation of the relevant criteria?

Temperature (°F)	Frequency	Temperature (°F)	Frequency
35-39	2	55-59	8
40-44	1	60-64	7
45-49	5	65-69	1
50-54	14		

Does the frequency distribution appear to have a normal distribution?

- ○ A. Yes, all the requirements are met.
- ○ B. No, the frequencies do not decrease from the maximum frequency to a low frequency.
- ○ C. No, the distribution is not approximately symmetric.

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

5. 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)
6 – 9	☐ %	☐ %
10 – 12	☐ %	☐ %
13 – 16	☐ %	☐ %
17 – 20	☐ %	☐ %
21 – 24	☐ %	☐ %
25 – 28	☐ %	☐ %
29 – 32	☐ %	☐ %

(Simplify your answers.)

Do cigarette filters appear to be effective?

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

Frequency Distributions

Tar (mg) in Nonfiltered Cigarettes	Frequency	Tar (mg) in Filtered Cigarettes	Frequency
13 – 16	1	6 – 9	3
17 – 20	1	10 – 12	1
21 – 24	13	13 – 16	7
25 – 28	6	17 – 20	14
29 – 32	4		

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

6. Construct the cumulative frequency distribution for the given data.

Daily Low (°F)	Frequency
35-39	2
40-44	4
45-49	5
50-54	9
55-59	6
60-64	7
65-69	1

Construct the cumulative frequency distribution.

Daily Low Temperature (°F)	Cumulative Frequency
Less than 40	☐
Less than 45	☐
Less than 50	☐
Less than 55	☐
Less than 60	☐
Less than 65	☐
Less than 70	☐

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

The 2148 people aboard a ship that sank include 428 male survivors, 1312 males who died, 272 female survivors, and 136 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:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

8. The data represents the daily rainfall (in inches) for one month. Construct a frequency distribution beginning with a lower class limit of 0.00 and use a class width of 0.20. Does the frequency distribution appear to be roughly a normal distribution?

0.34	0	0	0.29	0	0.58
0	0.18	0	0	1.32	0
0.05	0	0.01	0	0.23	0
0.22	0.48	0	0.02	0	0.21
0	0.22	0	0	0.24	0

Daily Rainfall (in inches)	Frequency	Daily Rainfall (in inches)	Frequency
0.00-0.19		0.80-0.99	
0.20-0.39		1.00-1.19	
0.40-0.59		1.20-1.39	
0.60-0.79			

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

A. No, although the distribution is approximately symmetric, the frequencies do not start low, increase to some maximum frequency, then decrease.

B. No, the distribution is not symmetric and the frequencies do not start off low.

C. No, although the frequencies start low, increase to some maximum, then decrease, the distribution is not symmetric.

D. Yes, all of the requirements are met.

9. 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	26.8	21.9	25.4
27.9	24.3	18.3	29.9	23.3
19.2	25.4	22.1	37.7	38.2
27.1	44.9	30.2	29.7	25.5

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, although the frequencies start low, increase to some maximum, then decrease, the distribution is not symmetric.

B. No, although the distribution is approximately symmetric, the frequencies do not start low, then increase to some maximum frequency, then decrease.

C. Yes, all of the requirements are met.

D. No, the distribution is not symmetric and the frequencies do not start off low.

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

10. Refer to the accompanying data set and use the weights (grams) of the coins to construct a frequency distribution. Begin with a lower class limit of 3.0000 g, and use a class width of 0.0500 g.

Click on icon to view the data.

Complete the frequency distribution below.

Weight (g)	Frequency
3.0000 – ☐	☐
☐ – ☐	☐
☐ – ☐	☐
☐ – ☐	☐
☐ – ☐	☐
☐ – ☐	☐
☐ – ☐	☐
☐ – ☐	☐

(Type integers or decimals rounded to four decimal places as needed.)

More Info

Coin Weights (grams)

3.2168	3.1393	3.2313	3.0058	3.1051	3.1075	3.1778	3.2842	3.2173	3.2013
3.2504	3.2894	3.1896	3.2026	3.3596	3.1051	3.3528	3.3147	3.2931	3.3367
3.1048	3.2413	3.1022	3.1406	3.3609	3.1793	3.3619	3.2652	3.1978	3.3779

11. 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.

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

Complete the frequency distribution below.

Blood Group	Frequency
O	☐
A	☐
B	☐
AB	☐

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

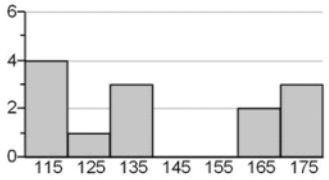
12. The population of ages at inauguration of all U.S. Presidents who had professions in the military is 62, 46, 68, 64, 57. Why does it not make sense to construct a histogram for this data set?

Choose the correct answer below.

- ○ A. Adequate class boundaries for a histogram cannot be found with this data set.
- ○ B. There must be an even number of data values in the data set to create a histogram.
- ○ C. With a data set that is so small, the true nature of the distribution cannot be seen with a histogram.
- ○ D. This data set would yield a histogram that is not bell-shaped.

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

How many team members are included in the histogram?



The histogram represents ☐ math team members.

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

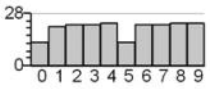
14. The last digit of the heights of 56 statistics students were obtained as part of an experiment conducted for a class. Use the frequency distribution to the right to construct a histogram.

Digit	Frequency
0	13
1	5
2	4
3	4
4	3
5	13
6	4
7	4
8	3
9	3

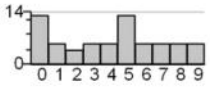
What can be concluded from the distribution of the digits? Specifically, do the heights appear to be reported or actually measured?

Choose the correct histogram below.

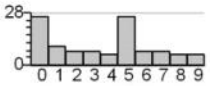
○A.



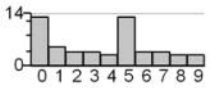
○B.



○C.



○D.



Are the data reported or measured?

○A. The data appears to be measured. The heights occur with roughly uniform frequency.

○B. The data appears to be measured. Certain heights occur a disproportionate number of times.

○C. The data appears to be reported. The heights occur with roughly uniform frequency.

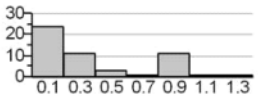
○D. The data appears to be reported. Certain heights occur a disproportionate number of times.

15. The table below shows the frequency distribution of the rainfall on 52 consecutive Wednesdays in a certain city. Use the frequency distribution to construct a histogram. Do the data appear to have a distribution that is approximately normal?

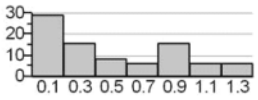
Class	Frequency
0 – 0.19	24
0.20 – 0.39	11
0.40 – 0.59	3
0.60 – 0.79	1
0.80 – 0.99	11
1.00 – 1.19	1
1.20 – 1.39	1

Choose the correct histogram below.

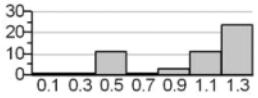
○ A.



○ B.



○ C.



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

○ A. No, it is approximately uniform.

○ B. No, it has no obvious maximum.

○ C. No, it is not symmetric.

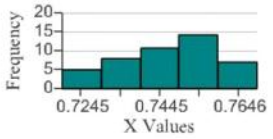
○ D. Yes, it is approximately normal.

16. The table below shows the frequency distribution of the lengths (in inches) of stainless steel sheet metal screws from packages with labels indicating that the screws have a length of 3/4 in. Use the frequency distribution to construct a histogram. What does the histogram suggest about the length of 3/4 in, as printed on the labels of the packages containing the screws?

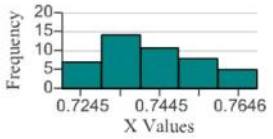
Length (in)	Frequency
0.720 − 0.729	5
0.730 − 0.739	8
0.740 − 0.749	11
0.750 − 0.759	14
0.760 − 0.769	7

Choose the correct histogram below.

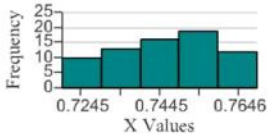
○A.



○B.



○C.



What does the histogram suggest about the length of 3/4 in, as printed on the labels of the packages containing the screws?

○A. The data are not normal. The distribution appears to be consistent with the label of 3/4 in.

○B. There is too much variation in the data. The histogram appears to be inconsistent with the label of 3/4 in.

○C. The data appear to be centered around .750 in. The histogram appears to be consistent with the label of 3/4 in.

○D. The data are normal. The histogram appears to be consistent with the label of 3/4 in.

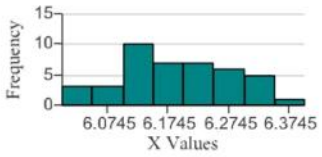
Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

17. The table below shows the frequency distribution of the weights (in grams) of pre-1964 quarters. Use the frequency distribution to construct a histogram.

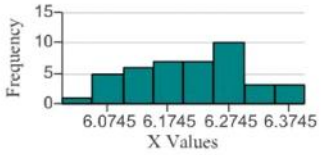
Weight (g)	Frequency
6.0000 – 6.0490	3
6.0500 – 6.0990	3
6.1000 – 6.1490	10
6.1500 – 6.1990	7
6.2000 – 6.2490	7
6.2500 – 6.2990	6
6.3000 – 6.3490	5
6.3500 – 6.3990	1

Choose the correct histogram below.

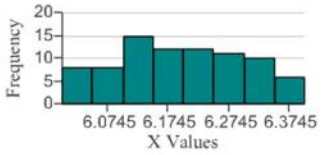
○A.



○B.



○C.



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

Choose the correct answer below.

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

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

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

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

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

19. The data represents the actual high temperature for 14 consecutive days.

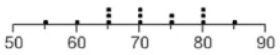
65 70 75
80 75 80
70 65 75
65 60 70
55 85

Construct a dotplot of the actual high temperatures. What does the dotplot suggest about the distribution of the high temperatures?

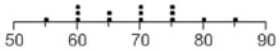
Which plot represents a dotplot of the data?

A.

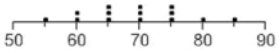
B.



C.



D.



What does the dotplot suggest about the distribution of the high temperatures?

A. The actual high temperatures range from 55 degrees to 85 degrees with most readings greater than 85 degrees.

B. The actual high temperatures range from 55 degrees to 85 degrees with most readings in the 55-70 degree range.

C. The actual high temperatures range from 55 degrees to 85 degrees with most readings less than 55 degrees.

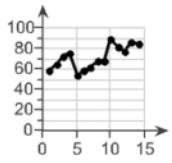
D. The actual high temperatures range from 55 degrees to 85 degrees with most readings in the 65-80 degree range.

20. 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.

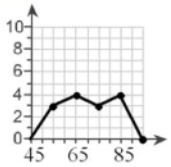
64 73 76
54 58 62
68 68 89
81 77 86
58 85

Which graph represents a frequency polygon of the data?

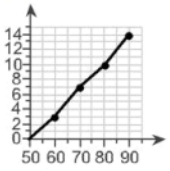
A.



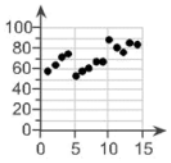
B.



C.



D.



Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

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

Use the heights to construct a stemplot. What does the stemplot suggest about the distribution of the heights?

122	90	110	150
140	120	100	130
110	129	135	110
117	127	121	120
134	130	100	148

Which plot represents a stemplot of the data?

○ A.

9	0 0 7
10	0 0 2
11	0 0 9
12	0 0 1
13	0 0 7
14	0 4 5
15	0 8

○ B.

9	0
10	0 0
11	0 0 0 7
12	0 0 1 2 7 9
13	0 0 4 5
14	0 8
15	0

○ C.

9	0 0 7
10	0 0 1 2 7 9
11	0 0 4 5
12	0 0 8
13	0 0
14	0
15	0

What does the stemplot suggest about the distribution of the heights?

- ○ Bell-shaped
- ○ Skewed
- ○ Uniform

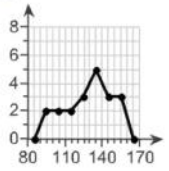
22. The data represents the heights of eruptions by a geyser.

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 110 ft?

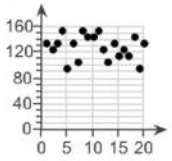
130	121	135	151
93	138	109	150
149	143	150	120
100	130	110	120
110	140	90	130

Construct an ogive.

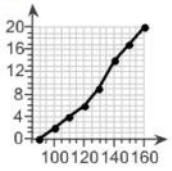
○ A.



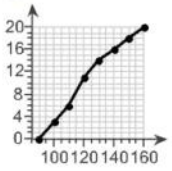
○ B.



○ C.



○ D.



How many eruptions were below 110 ft?

☐

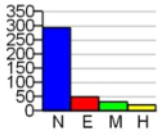
Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

23. 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?

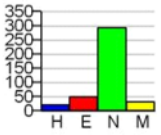
Job Sources	Frequency
Help-wanted ads (H)	22
Executive search firms (E)	50
Networking (N)	292
Mass mailing (M)	36

Choose the correct Pareto chart.

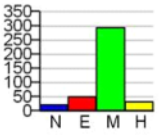
A.



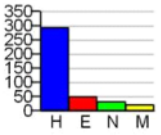
B.



C.



D.



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

A. Mass mailing (M)

B. Executive search firms (E)

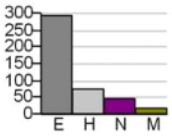
C. Help-wanted ads (H)

D. Networking (N)

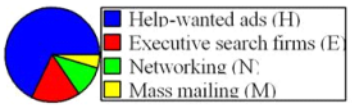
Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

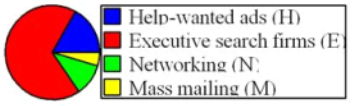
24. A study was conducted to determine how people get jobs. The table below lists data from 400 randomly selected subjects.

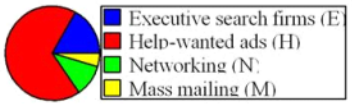
Job Sources	Frequency
Help-wanted ads (H)	73
Executive search firms (E)	294
Networking (N)	47
Mass mailing (M)	20



Choose the correct pie chart.

○


○


○


Compare the pie chart found above to the Pareto chart given on the left. Can you determine which graph is more effective in showing the relative importance of job sources?

○A. The pie chart is more effective.

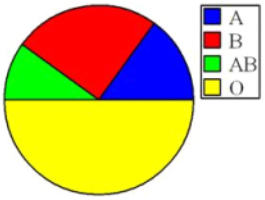
○B. The Pareto chart is more effective.

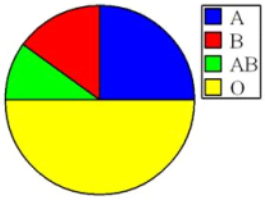
○C. Neither one is effective.

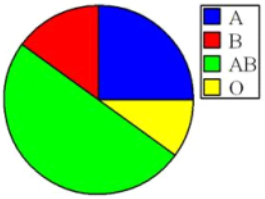
25. Listed below are blood groups of O, A, B, and AB of randomly selected blood donors. Construct a pie chart depicting the distribution of these blood groups.

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

Choose the correct graph below.

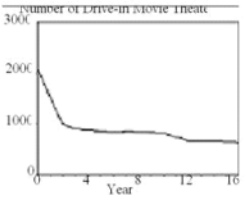
○A.


○B.


○C.


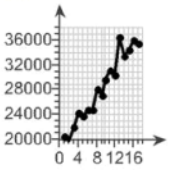
Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

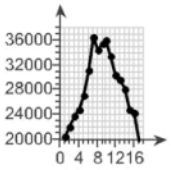
26. Given below are the numbers of indoor movie theaters, listed in order by row for each year. Use the given data to construct a time-series graph. What is the trend? How does this trend compare to the trend for drive-in movie theaters?

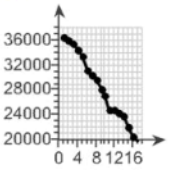


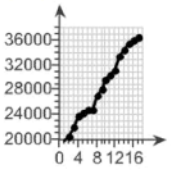
20,595	19,702	21,907	24,365	23,740	24,906
24,789	28,155	26,995	29,730	31,050	30,278
36,448	33,404	34,490	35,945	35,361	

Construct a time-series graph.

○A.


○B.


○C.


○D.


What is the trend? How does this trend compare to the trend for drive-in movie theaters?

○A. There appears to be an downward trend, similar to drive-in movie theaters, which also have a downward trend.

○B. There appears to be an upward trend, unlike drive-in movie theaters, which have a downward trend.

○C. There appears to be an upward then downward trend, unlike drive-in movie theaters, which only have a downward trend.

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

27. A format for back-to-back stemplots representing the pulse rate of females and males from the given data is shown below. Complete the back-to-back stemplot, then compare the results.

Females Full data set

78 82 74 80 64 84 63 83 61 66
60 73 75 105 63 74 88 66 85 124

Males

62 85 65 61 75 88 59 68 86 84
76 62 61 63 54 73 89 68 51 60

Women	Stem (tens)	Men
	5	149
6643310	6	
	7	
	8	
	9	
	10	
	11	
	12	

Complete the back-to-back stemplot.

Women	Stem (tens)	Men
	5	149
6643310	6	☐
☐	7	☐
☐	8	☐
	9	
☐	10	
	11	
☐	12	

Compare the results.

- ○ A. The distribution of pulse rates for men is concentrated, centered around 60, whereas the distribution of pulse rates for women is more spread out, centered around 70.
- ○ B. The distribution of pulse rates for both men and women are concentrated, and centered around 60.
- ○ C. The distribution of pulse rates for women is concentrated, centered around 60, whereas the distribution of pulse rates for men is more spread out, centered around 70.

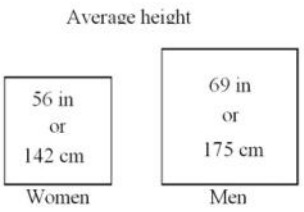
28. The *Washington Post* illustrated diminishing purchase power of the dollar in five different presidential administrations using five different $1 bill of different sizes. The Eisenhower era was represented by a $1 with purchasing power of $1, and the subsequent administrations were represented with smaller 1$ 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 two-dimensional, but amounts of purchasing power are one-dimensional.
- ○ B. Images of dollar bills are three-dimensional, but amounts of purchasing power are two-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 three-dimensional.

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

29. According to a recent study, women have an average (mean) height of 56 in or 142 cm, and men have an average (mean) height of 69 in or 175 cm. These averages are shown in the graph to the right. Does the graph depict the data fairly?



Choose the correct answer below.

- ○ A. Yes, because the heights are two-dimensional measurments, it is appropriate to depict the data with objects of area.
- ○ B. Yes, because the data are represented in both standard and metric units.
- ○ C. No, because the heights are one-dimensional measurements, but the graph uses objects of area.
- ○ D. No, because the graph contains errors.

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

30. 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.

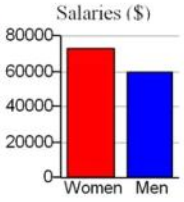
What impression does the graph create?

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

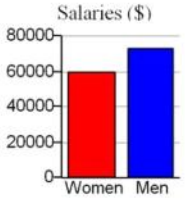
Does the graph depict the data fairly?

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

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

○A.


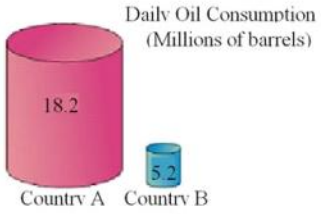
○B.


○C.


○D. The graph depicts the data fairly

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

31. The graph to the right uses cylinders to represent barrels of oil consumed by two countries. Does the graph distort the data or does it depict the data fairly? Why or why not? If the graph distorts the data, construct a graph that depicts the data fairly.

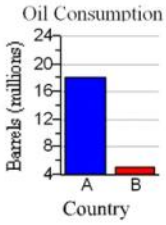


Does the graph distort the data? Why or why not?

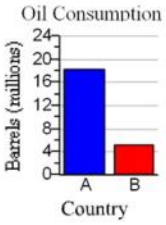
- ○A. Yes, because the graph uses objects of volume to represent the data.
- ○B. No, because the proportions are accurate.
- ○C. No, because the graph is technically correct.
- ○D. Yes, because the graph contains errors.

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

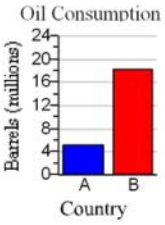
○A.



○B.



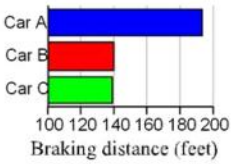
○C.



○D. The graph depicts the data fairly.

Student: _____	**Instructor:** Darryl Allen	**Assignment:** HW2
Date: _____	**Course:** Elementary Statistics 60157	
Time: _____	**Book:** Triola: Elementary Statistics, 11e	

32. The graph to the right shows the braking distances for different cars measured under the same conditions. Describe the ways in which this graph might be deceptive. How much greater is the braking distance of Car A than the braking distance of Car C? Draw the graph in a way that depicts the data more fairly.



In what way might the graph be deceptive?

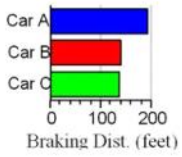
- ○A. The units in the graph are not consistent throughout.
- ○B. By starting the horizontal axis at 100, the graph cuts off portions of the bars.
- ○C. The graph compares more than two values.
- ○D. There are errors in the graph.

How much greater is the braking distance of Car A than the braking distance of Car C?

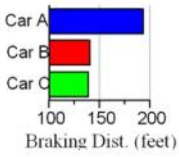
- ○A. The braking distance of Car A is about 120 ft greater than the braking distance of Car C.
- ○B. The braking distance of Car A is more than twice the braking distance of Car C.
- ○C. The braking distance of Car A is about the same as the braking distance of Car C.
- ○D. The braking distance of Car A is about 40% greater than the braking distance of Car C.

Draw the graph in a way that depicts the data more fairly. Choose the correct graph below.

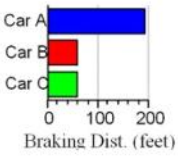
○A.



○B.



○C.



○D.