Section 12.2 Worksheet

Name_____

For Exercises 1–3, find the mean for the group of data items. Round answers to the nearest hundredth, if necessary.

1. 7, 9, 8, 2, 12, 10, 3, 8

7.375

2. 77, 77, 37, 48, 53, 77

61.5

3. 4.9, 1.8, 6.3, 7.6, 4.9, 9.3, 4.9, 9.5, 9.5, 9.4

6.81

For Exercises 4–6, find the median for the group of data items.

4. 11, 9, 4, 0, 2, 1, 2, 0, 0

2

5. 99, 99, 93, 57, 78, 99

96

6. 1.1, 2.3, 1.6, 2.6, 1.1, 2.3, 1.1, 8.4, 8.4, 1.8

2.05

For Exercises 7–9, find the mode for the group of data items. If there is no mode, so state.

7. 11, 7, 4, 0, 1, 1, 1

1

8. 95, 95, 93, 43, 72, 95

95

9. 1.1, 2.4, 1.7, 3, 1.1, 2.4, 1.1, 8.8, 8.8, 2

1.1

For Exercises 10–12, find the midrange for the group of data items.

10. 11, 8, 5, 8, 1, 5, 1

6

11. 96, 96, 93, 48, 73, 96

72

12. 1.1, 2.4, 1.5, 2.8, 1.1, 2.4, 1.1, 8.8, 8.8, 2

4.95

12.2

Name_____

13. A company advertised that, on the average, 99% of their customers reported "very high satisfaction" with their services. The actual percentages reported in 15 samples were the following: 99, 99, 91, 38, 79, 99, 91, 79, 99, 99, 38, 91, 91, 99, 38

a. Find the mean.

82

b. Find the median.

91

c. Find the mode.

99

d. Find the midrange.

68.5

e. Which measure of central tendency was given in the advertisement?

mode

f. Which measure of central tendency is the best indicator of the "average" in this situation?

median

14. The following are the ages of teachers in the mathematics department of a certain high school: 28, 54, 35, 58, 28, 54, 28, 50, 50, 44

a. Find the mean. 42.9

b. Find the median. 47

c. Find the mode. 28

d. Find the midrange. 43

15. Find the measures of central tendency for the data items in the given frequency distribution.

Score x	Frequency f
1	5
2	4
3	1
4	10
5	6
6	9
7	7
8	8
9	12
10	12

a. Find the mean. 6.5

b. Find the median. 7

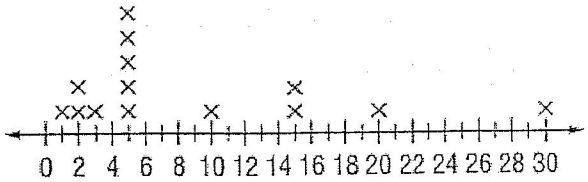
c. Find the mode. 9, 10

d. Find the midrange. 5.5

16. The line plot shows the height of desert cacti. Would the mean, median, or mode best represent the heights?

8, 8 | 5 | 5

Heights of Desert Cacti (ft)



17. Multiple-Choice: The maximum length in feet of several whales is listed below. If the maximum length of the Blue Whale, 98 feet, is added to this list, which of the following statements would be true?

46, 53, 33, 53, 79

without 98: mean = 52.8, median = 53, mode = 53

with 98: mean = 60.3, median = 53, mode = 53

A. The mode would decrease.
B. The median would decrease.
C. The mean would increase.
D. The mean would decrease.

18. Multiple-Choice: During the week, the daily low temperatures were 52°F, 45°F, 51°F, 45°F, and 48°F. If Saturday's low temperature of 51°F is added, which statement about the data set would be true?

A. The mean would decrease.
B. The median would decrease.
C. The mode would increase.
D. The mode would decrease.

	without 51°	with 51°
mean	48.2°	48.7°
med.	48°	49.5°
mode	45°	45° & 51°

19. Twenty-seven countries have sent people into space. The table shows the number of individuals from each country. Which measure best describes the data: mean, median, or mode? Explain.

mean = 15.6
med. = 1
mode = 1

median or mode
Since most countries have a data item of 1

People in Space

267	1	9	8	1	1	1	1	1
97	1	1	1	3	1	1	2	1
11	2	1	1	5	1	1	1	1

Source: *The World Almanac*

20. The table shows the points scored by a lacrosse team so far this season. The team will play 14 games this season. How many points need to be scored during the last game so that the average number of points scored this season is 12? Explain.

$$\frac{158 + x}{14} = 12$$

$$x = 10$$

Hawks Lacrosse Team Points Scored

11	15	12	10	10	10	13
14	13	13	10	15	12	

21. Multiple-choice: The table below shows the number of soup labels collected in one week by each. Which number could be added to the set of data in order for the mode and median of the set to be equal?

A. 89
B. 110
C. 125
D. 130

89 110 125 130 138

Classroom	Number of Soup Labels
Mr. Martin	138
Ms. Davis	125
Mr. Cardona	89
Mrs. Turner	110
Mr. Wilhelm	130
Mrs. LaBash	?

22. The Maui News gave the following costs in dollars per day for a random sample of condominiums located throughout the island of Maui. 40 45 45 50 50 55 60 60 60 65 68

89 50 68 60 375 55 500 71 40 350
60 50 250 45 45 125 235 65 60 130

(a) Compute the mean, median, and mode for the data.

mean = $\frac{2723}{20}$ = 136.15 median $\frac{65+68}{2}$ = 66.5 mode = 60

(b) If you were a travel agent and a client asked about the daily cost of renting a condominium on Maui, what average would you use? Explain

probably median (outliers)

23. The 11th Edition of The Pro Football Encyclopedia gave the following information. Random sample of pro football player ages in years:

~~24~~ ~~23~~ ~~25~~ ~~23~~ ~~30~~ ~~29~~ ~~28~~ ~~28~~ 33 ~~29~~
~~24~~ 37 ~~25~~ ~~23~~ ~~22~~ ~~27~~ ~~28~~ ~~25~~ ~~31~~ ~~29~~
~~25~~ ~~22~~ ~~31~~ ~~29~~ ~~22~~ ~~28~~ ~~27~~ ~~26~~ ~~23~~ ~~21~~
~~25~~ ~~21~~ ~~25~~ ~~24~~ ~~22~~ ~~26~~ ~~25~~ ~~32~~ ~~26~~ ~~29~~

21	2
22	4
23	4
24	3
25	7
26	4
27	2
28	3
29	5

30	1
31	2
32	1
33	1
37	1

(a) Compute the mean, median, and mode of the ages. mode = 25

mean = $\frac{1050}{40}$ = 26.25 median = $\frac{25+26}{2}$ = 25.5

(b) Compare the averages. Does one seem to represent the age of the pro football players most accurately? Explain. probably median — all are very close

Good to Know . . .

Mean, Median, Mode, and Range — Concept Summary

Measure	Most Useful When...
Mean	• data set has no outliers
Median	• data set has outliers • there are no big gaps in the middle of the data
Mode	• data set has many identical numbers