Name:_____ Date:_____

UNIT 4 LESSON 1

AIM: Measures of Central Tendency

Do Now: Write the letter of the correct definition for each vocabulary word.

1. E Central Tendency	A) It is the sum of the numbers divided by the number of numbers in a set of data. This is also known as average.
2. A Mean	B) The value that occurs most frequently in a set of data.
3. D Median	C) The difference between the greatest and least values in a set of data.
4. B Mode	D) The number present in the middle when the numbers in a set of data are arranged in order. If the number of numbers in a data set is even, then the median is the mean of the two middle numbers.
5. C Range	E) Refers to finding the Mean, Median, and Mode.

6. Find the measures of central tendency for the following data:

25, 35, 30, 35, 25, 40, 35, 30, 25, 20

a. What is the mean?

sum / total $\frac{300}{10} = \boxed{30}$

b. What is the median? arrange from low to high

20, 25, 25, 25, 30, 30, 35, 35, 35, 40

$\boxed{30}$

c. What is the mode? most often

$\boxed{25 \text{ \& } 35}$ → bimodal

d. What is the range? highest - lowest

$40 - 20 = \boxed{20}$

7. On his first 5 math tests, Bob received the scores 72, 86, 92, 63, and 77. What test score must Bob earn on his sixth test so that his average for all six tests will be an 80? Show how you arrived at your answer.

Let x = 6th score

sum / total $\quad \frac{72+86+92+63+77+x}{6} = 80$

$\frac{390+x}{6} = 80$

$390 + x = 480$

$-390 \qquad -390$

$\boxed{x = 90}$

Ask: what would happen if Bob's teacher added 5 points to each of his test scores

8. What was the median high temperature in Middletown during the 7-day period shown in the table below?

(a) What is the mean temperature? nearest tenth

$\boxed{\bar{x} = 69.7°}$

(b) What is the median temperature? $\boxed{69°}$

Daily High Temperature in Middletown	
Day	**Temperature (°F)**
Sunday	68
Monday	73
Tuesday	73
Wednesday	75
Thursday	69
Friday	67
Saturday	63

9. Ms. Rohr recorded the math test scores of six students in the table below. Determine the mean of the student scores, to the *nearest tenth*. Determine the median of the student scores. Describe the effect on the mean and the median if Ms. Rohr adds 5 bonus points to each of the six students' scores.

$\bar{x} = 81.3$

Med = 80

Both the mean & the median would increase by 5pts.

Student	Student Score
Andrew	72
John	80
George	85
Amber	93
Betty	78
Roberto	80

10. Mrs. Biscardi recorded her students' grades in the frequency table below. Which statement is true for the data?

1) mean > median > mode
2) mean > mode > median
3) mode > median > mean
4) median > mean > mode

$\bar{X} = 85.6$
Med = 88
Mode = 92

Score	Frequency
96	2
92	5
88	3
84	2
78	4
60	1

11. The prices of seven racecars sold last week are listed in the table below.

(a) What is the mean value of these racecars, in dollars? $\bar{X} = 315{,}000$

(b) What is the median value of these racecars, in dollars? 180,000

(c) State which of these measures of central tendency best represents the value of the seven racecars. Justify your answer.

Median b/c the mean is too high

Price per Race Car	Number of Race Cars
$126,000	1
$140,000	2
$180,000	1
$400,000	2
$819,000	1

12. If each member of the data set {2, 2, 3, 5, 8} is multiplied by 2, which changes will take place in the mean, median, and mode of the data? 4, 4, 6, 10, 8

1) The mean, median, and mode will be multiplied by 2.
2) The median will remain the same; the mean and mode will be multiplied by 2.
3) The mode will remain the same; the mean and median will be multiplied by 2.
4) The mean will remain the same; the median and mode will be multiplied by 2.

13. Given the following list of students' scores on a quiz:

5, 12, 7, 15, 20, 14, 7

a) Determine the median of these scores. 12

b) Determine the mode of these scores. 7

c) The teacher decides to adjust these scores by adding three points to each score. Explain the effect, if any, that this will have on the median and mode of these scores.

Both the median & mode will be increased by three points.