Chapter 12.2-12.4 Quiz Review

Name Key!

Date _____ Per _____

1) Find the mean, median, mode, and midrange for the given stem and leaf plot that illustrates the time it takes a group of students to complete their math homework.

Stem	Leaf
1	8,9,9
2	1,2,7
3	0
4	2,4,6,6
5	0

Mean: 32

Median: 28.5

Mode: 19, 46

Midrange: 34

Range: 32

Std. Dev: 12.59

2) Find the mean, median, mode, and midrange for the data items in the given distribution.

# of Kids x	Frequency f
1	10
2	15
3	9
4	5
5	3
6	1

Mean: 2.51

Median: 2

Mode: 2

Midrange: 2.5

Range: 5

Std. Dev: 1.3

3) Zach had tests in both English and Science. His English class had a mean score of 32 with a standard deviation of 5. His Science class had a mean score of 36 with a standard deviation of 6. If Zach scored a 20 on his English test and a 24 on his Science test, which test did he do better on? **(Make sure you know why!!)** Did better on Science test.

Eng: $20-32/5 = -2.4$ Science: $24-36/6 = -2$

4) A set of data items is normally distributed with a mean of 85 and a standard deviation of 12. Find value of a data item if its z-score is 1.75.

$\frac{X-85}{12} = 1.75$

$X-85 = 21$

$X = 106$

5) A set of data items is normally distributed with a mean of 32 and a standard deviation of 3. Find value of a data item if its z-score is -1.5.

$$\frac{x-32}{3} = -1.5$$

$$x - 32 = -4.5$$

$$\boxed{x = 27.5}$$

6) The miles driven to work are normally distributed with a mean of 27. Find the score that is 2 standard deviations above the mean, if the standard deviation is 4.

$$27 + 2(4) = \boxed{35}$$

7) The number of kids going to a sporting event is normally distributed with a mean of 105. Find the number of kids going that is 1.75 standard deviations above the mean, if the standard deviation is 16.

$$105 + 1.75(16) = \boxed{133}$$

8) Find the standard deviation for the given data items **without** using the STAT button on the graphing calculator. You must fill in the chart and show all work for credit.

Data items: 7, 9, 13, 16, 22, 29, 31

x	$x-\bar{x}$	$(x-\bar{x})^2$
7	$7-18.14 = -11.14$	124.10
9	$9-18.14 = -9.14$	83.54
13	$13-18.14 = -5.14$	26.42
16	$16-18.14 = -2.14$	4.58
22	$22-18.14 = 3.86$	14.90
29	$29-18.14 = 10.86$	117.94
31	$31-18.14 = 12.86$	165.38

$\bar{x} = 18.14$

$\Sigma = 536.86$

$$s = \sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}}$$

$s = 9.46$

$$\sqrt{\frac{536.86}{6}}$$

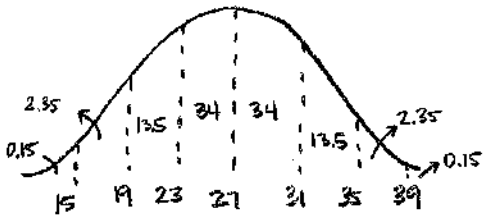
9) Suppose the age of females getting married worldwide is approximately normally distributed with a mean age of 27 and a standard deviation of 4. Use the 68-95-99.7 Rule to answer the following:

a) Find the percentage of women who are between 19 and 31 years old 81.5%

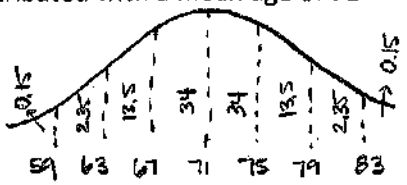
b) Find the percentage of women who are older than 35. 2.5%

c) Find the percentage of women who are younger than 23 16%

d) Find the percentage of women who are between 23 and 39 years old.
83.85%



10) Use the 68-95-99.7 rule. The age of a homeowner in Sun City is normally distributed with a mean age of 71 years and a standard deviation of 4 years.



a) What percent of the homeowners in Sun City are older than 83?
0.15%

b) What percent of the homeowners in Sun City are younger than 67?
16%

c) What percent of the homeowners in Sun City are between 71 and 79 years old?
47.5%

11) Find the standard deviation of the given set of numbers without using the STAT button: 6, 8, 9, 15, 17

x	$x-\bar{x}$	$(x-\bar{x})^2$
6	$6-11=-5$	25
8	$8-11=-3$	9
9	$9-11=-2$	4
15	$15-11=4$	16
17	$17-11=6$	36

$\bar{x}=11$ $\quad \Sigma = 90$

$$s=\sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}} \qquad s = 4.74$$

$$\sqrt{\frac{90}{4}}$$