

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: 20.5

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

Mean: 2.51

Median: 2

Mode: 2

Midrange: 3.5

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!!)

Eng: $\frac{20-32}{5} = -2.4$

Science: $\frac{24-36}{6} = -2$

Did better on Science test.

- 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 = 106

$$x-85 = 21$$

- 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.

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

$$x = 27.5$$

$$x - 32 = -4.5$$

- 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.

$$27 + 2(4) = 35$$

- 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.

$$105 + 1.75(16) = 133$$

- 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

$$\bar{x} = 18.14$$

$$\Sigma = 541.86$$

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

$$s = \underline{9.50}$$

$$\sqrt{\frac{541.86}{6}} = \sqrt{90.31}$$

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:

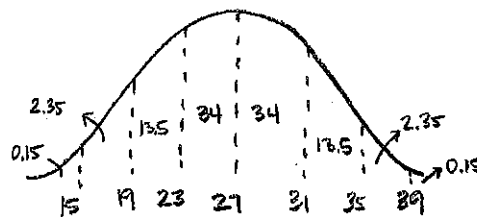
a) Find the percentage of women who are between 19 and 31 years old **81.5%**

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?

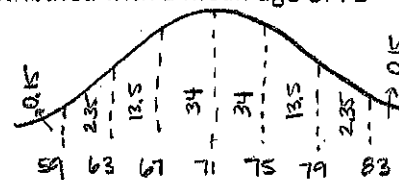
0.15%

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

$\bar{x} = 11$

$\Sigma = 90$

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

$s = \underline{4.74}$

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