F. S. T. *Name:* _____

Chapter 1 Review *Block:* ____

Non-Calculator

Mr. Joe's Geometry classes test scores are given for blocks 1 and 3. Use this data to answer questions 1-6.

1. How many students are in block 3?
2. What is the median test score for block 1?
3. What is the mode of block 1?
4. What is the mean of block 3?
5. Samantha was absent the day of the test. What score must she get to raise the mean for block 3 to 84% ?

1st Block						3rd Block				
				5	5	0				
		7	4	2	6	0	6			
			3	0	7	8				
	8	6	5	4	1	8	2	2	4	8
9	7	7	2	1	0	9	3	3	5	7	9
				0	0	10	0			

6. Write an expression using sigma notation to represent the mean of the test scores for block 1.

7. What are the three measures of center? How do you find each?

The following data describes team batting averages for all Major League Baseball teams in 1995. Use it to answer questions 8-13.

227, 247, 249, 252, 258, 259, 259, 260, 261, 261, 261, 263, 263, 264, 265, 265, 266, 270, 271, 275, 275, 276, 276, 279, 279, 280, 281, 299

8. Give the five number summary of the scores.

9. Find the IQR.

10. What score is at the 81st percentile?

11. What percentile is 260?

12. Create a box plot of this data.

13. The middle 50% of the batting averages fall between _____ and _____.

14. Consider the heights of teachers, in inches, in District 20. Use the data to create a histogram. Be sure to label!!

73	74	62	76	61	64	63	62
76	71	71	70	65	69	74	63
77	60	67	69	70	74	59	81
64	67	68	67	70	62	66	78
73	70	66	64	61	79	63	72
69	71	74					

15. What are the eight ways to display data? Give an example when you would use each type of display.

16. Given the set $x_1 = 1,\ x_2 = 8,\ x_3 = 12,\ x_4 = 0,\ x_5 = 5,\ x_6 = 10,\ x_7 = 5,\ and\ x_8 = 7$. Find:

a) the mean.
b) the variance
c) the standard deviation

17. Thirty members of a hiking club were asked to set a goal of walking an additional ten miles per week. Their mileage statistics at the outset of the program are described in the Initial Miles column of the table below. Complete the Chart Below.

	Initial Miles	Target Miles
Mean	36.7	**a.**
Standard Deviation	**b.**	22.4
Median	**c.**	50.0
Range	29.0	**d.**
Mode	42.0	**e.**

18. **True or False** If a data set undergoes a scale change with the scale factor 4, the mean is changed by a factor of $\frac{1}{4}$.

19. **Multiple Choice** The variance of a data set is 4. Suppose each element of the set is multiplied by 8. What is the variance of the new data set?

A) 256 B) 128 C) 4 D) 32

20. An environmental group is measuring the levels of the pesticide thiabendazole found in apples. They bought a sample of apples at each of ten local stores and recorded the thiabendazole levels of the samples in the table at the right. They computed the following statistics for these data.

Mean:
0.652 ppm

Standard Deviation:
0.474 ppm

Store Number	**Concentration in parts per million (ppm)**
1	0.510
2	0.775
3	0.812
4	1.000
5	1.500
6	0.333
7	0.147
8	0.311
9	0.001
10	1.131

a. The group wanted to compare the concentration of the thiabendazole in each store's apples to the mean concentration. To do this, they divide each concentration in the table by the mean. Give the mean and standard deviation of the transformed data.

b. How will the median of the data be affected by the transformation describe in part **a**.

21. Last week, Tonya scored 26 on a Spanish test on which the mean was 22 and the standard deviation was 1.6. Junior scored 48 on a Russian test on which the mean was 43 and the standard deviation was 1.5.

a. Find Tonya's and Junior's z-scores.

b. Who did better compared to other students? Explain your reasoning.

22. **Multiple Choice** Which of the following would affect the z-score of each element of a data set?
A) Add a constant value to each element in the data set.
B) Multiply each element in the data set by a constant value.
C) Add more data elements to the data set.
D) None of the above affects the z-score.

Calculator Allowed

23. Air Academy had 1480 students last year. A survey was given to 110 of these students to see how many students used academy period to speak to their teachers.

a) What was the population?

b) What was the sample?

c) What percent of the population was the sample?

d) Why do you think only this sample was tested?

Use the table below for questions 24 and 25.

Continent	Area (1000 sq. mi.)	Population (in millions)
Africa	11700	878
Antarctica	5400	0
Asia	17400	3340
Australia	3300	29
Europe	3800	714
N. America	9400	292
Central & S. America	6900	481

24. List the central angle measures you would use to make a circle graph showing the areas of all seven continents.

25. Make a bar graph of the populations. Label your axes!!

26. Refer to the table used for question 14.

a) Determine if there are any outliers for the data. If there are, list them. If not, explain.

b) Find the variance and standard deviation.

Answer Key

1. 14

2. 86

3. 97 & 100

4. $\frac{1167}{14} = 83.4$

5. $x = 93$

6. $x = \frac{1}{19}\sum_{i=1}^{19} x_i$

7. mean:find sum & divide by # of data values
   median: put #'s in order and find middle value
   mode: list most often occurring values

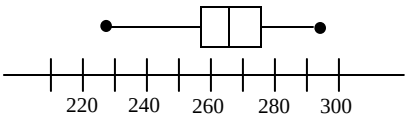
8. min: 227
   Q_1 : 259.5
   median : 264.5
   Q_3 : 275.5
   max: 299

9. 16

10. 276

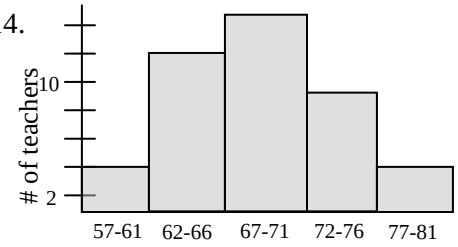
11. 29th

12.



13. between 259.5 & 275.5

14.



15. Circle graph: % of categories
    Bar graph: freq. of categories vs. e/o
    Histogram: freq. of numerical data in interval
    Stem plot: shows each data value
    Dotplot: freq. of small amt of numerical data
    Line graph and Scatterplot: large amt of # data in 2 variables; esp time series
    Box plot: distrib. of large set of single variables

16. a.) 6 b.) 17.14 c.) 4.14

17. a) 46.7 b) 22.4 c) 40.0
    d) 29.0 e) 52.0

18. False, the mean is changed by a factor of 4

19. A

20. a) the new mean = 1,
    the new standard deviation = 0.727
    b) The median will be multiplied by 1/0.652

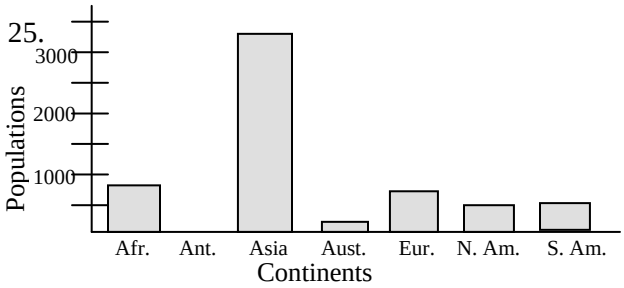
21. a)Tonya = 2.5 Junior = 3.33
    b) Junior did better. His Z-score indicated he was 3.33 standard deviations above the mean, while Tonya was only 2.5 standard deviations above the mean.

22. C

23.a.) 1480 AAHS students
    b.) 110 AAHS students
    c.) 7.4 %
    d.) time, $

24. Africa: 72.7°
    Antarctica: 33.6°
    Asia: 108.2°
    Australia: 20.5°
    Europe: 23.6°
    N. America: 58.4°
    Central & S. America: 42.9°

25.



26. a.) No outliers because there are no values in the set above 86.5 and no values below 50.5.
    b.) $s^2 = 31.6$ and $s = 5.6$