AP Statistics: Review Days 1-3

Name: Paulson
Date _____ Period _____

1. The test grades for a certain class were entered into a Minitab worksheet, and then "Descriptive Statistics" were requested. The results were:

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
Grades	28	74.71	76.00	75.50	12.61	2.38

	MIN	MAX	Q1	Q3
Grades	35.00	94.00	68.00	84.00

a. Determine the IQR for this data.

$84 - 68 = \boxed{16}$

b. Using the answer from part (a), determine whether the lowest and highest values in the data are outliers.

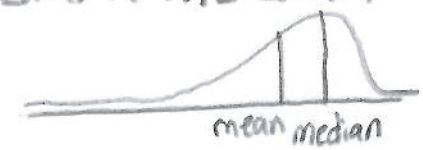
$68 - 1.5(16) = 44$

$84 + 1.5(16) = 108$

There is an outlier at the lower end. The lowest value is an outlier.

c. Do you think the data is skewed left, skewed right or roughly symmetrical? Explain your reasoning.

Since the mean is less than the median, the data is slightly skewed left.



2. Mr. Dow's Geometry class had the following statistics on their last quiz:

Mean = 78	Standard Deviation = 2.6	Median = 80
Range = 48	IQR = 22	Variance = 6.76

a. What would the new statistics be if each score was multiplied by 1.2?

Mean = 93.6 Stand. Dev = 3.12 Median = 96

Range = 57.6 IQR = 26.4 Variance = 9.73

b. What would the new statistics be if each score was increased by 15?

Mean = 93 Stand Dev = 2.6 Median = 95

Range = 48 IQR = 22 Variance = 6.76

3. What type of distribution will have the smallest standard deviation?

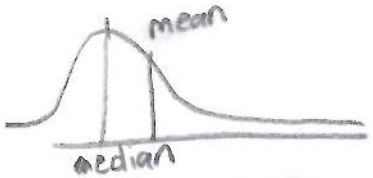
A normal bell-curve where all the data points are close to the mean and median.

4. What type of distribution will have the largest standard deviation?

A skewed curve or a normal-bell curve where the data points are not close to the mean and median.

5. In a density curve, when is the mean greater than the median?

When the data is skewed to the right.

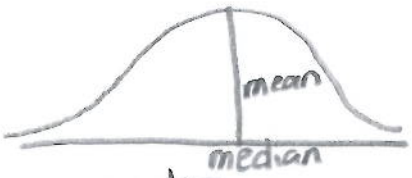


6. In a density curve, when is the mean smaller than the median?

When the data is skewed to the left.

7. In a density curve, when is the mean the same as the median?

When the data is approximately normal



8. A class of 20 students had the following scores on their most recent test: 75, 77, 78, 78, 80, 81, 81, 82, 83, 84, 84, 84, 85, 87, 87, 88, 88, 88, 89, 90.

   a. A person who earned a score of 82 is in what percentile?

   $\frac{7}{20} = .35$

   A person that scored an 82 is in the 35th percentile.

   b. A person that scored in the 65th percentile earned what test score?

   $\frac{x}{20} = .65$

   $x = 13$

   A person in the 65th percentile scored an 87 on the test

   c. What are the 1st and 3rd quartile scores?

   $\frac{x}{20} = .25$ $\quad x = 5$

   $\frac{x}{20} = .75$ $\quad x = 15$

   A person in the 1st quartile scored an 81 and a person in the 3rd quartile scored an 88.

9. You scored an 82 on a test in your statistics class where the mean was 86 and the standard deviation was 2. Your best friend is in a different statistics class and scored an 88 where the mean in her class was 92 and the standard deviation was 3. Who had the better score relative to their own class?

   You:

   $Z = \frac{82 - 86}{2}$

   $Z = -2$

   Friend:

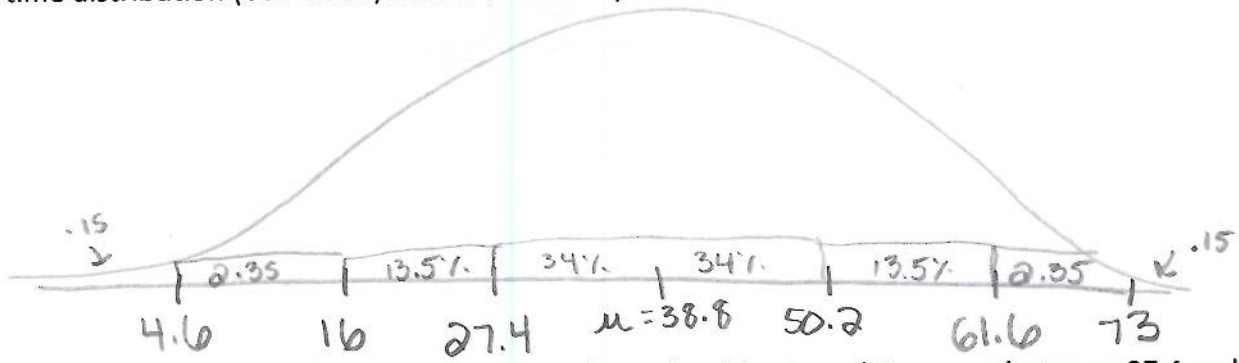
   $Z = \frac{88 - 92}{3}$

   $Z = -1.33$

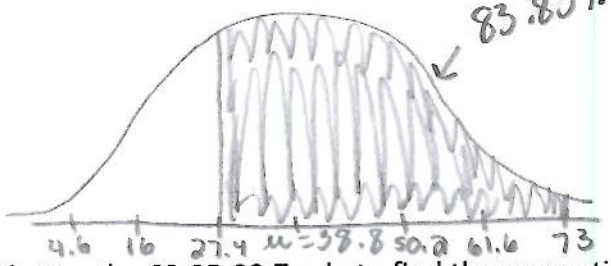
   Your friend scored better relative to her class because she was about 1.33 standard deviations below her class mean while you were 2 standard deviations below your class mean.

10. A survey of daily travel time to work was given and it was determined that the mean travel time was 38.8 minutes with a standard deviation of 11.4 minutes.

A) Assuming that the distribution of travel times is approximately normal, make an accurate sketch of the time distribution (bell-curve). Be sure to mark your axis.

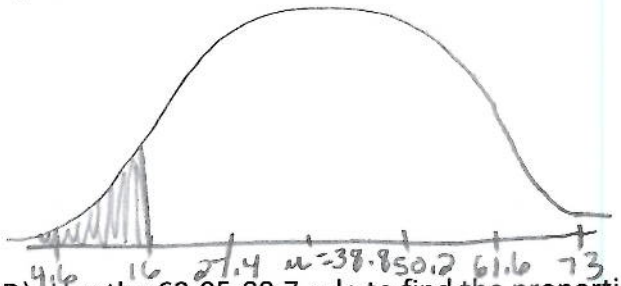


B) Use the 68-95-99.7 rule to find the proportion of people whose travel times are between 27.4 and 73 minutes.



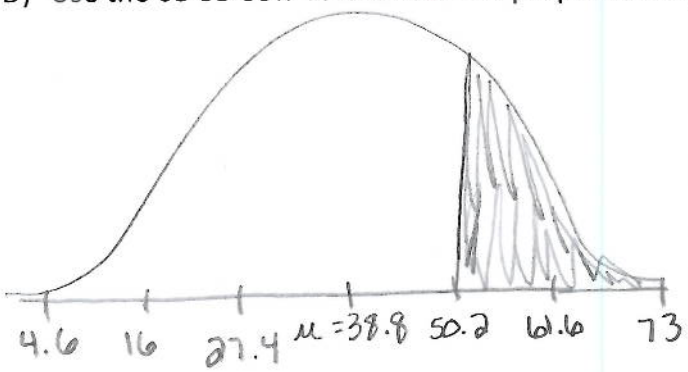
About 83.85% of the travel times are between 27.4 and 73 minutes.

C) Use the 68-95-99.7 rule to find the proportion of people whose travel times are below 16 minutes.



About 2.5% of the travel times are below 16 minutes.

D) Use the 68-95-99.7 rule to find the proportion of people whose travel times are above 50.2 minutes.



About 16% of the travel times are above 50.2 minutes.