Name:_____ Date:_____

AP statistics (2021) Assignment 3 Variance, Data, and Interpreting Measures of Central Tendencies

1. Jenna's first 14 quiz grades were: 87, 85, 92, 76, 79, 81, 75, 88, 77, 97, 83, 91, 99, and 94.

a) Use your Ti83 to find the mean, standard deviation, variance, and Five Number Summaries

b) Suppose Jenna missed her last quiz and got a mark of zero. How would this mark affect her overall average for this course?

c) Would a histogram or boxplot best display Jenna's distribution of grades? Draw both and explain which display is best

2. The following table shows the salaries and number of employees for each position.

a) Use the data below to find the measures of central tendencies: mean, median, mode, standard deviation, and variance. Would the median, mean, or mode be best for describing the salaries of employees in the company? Explain:

Title	Number of Employees	Salaries
Clerks	12	50,000
Accountants	10	80,000
Managers	3	100,000
Partners	2	350,000

b) If everyone in the company received a $30,000 raise, how would it affect the mean, median, and standard deviation of salaries in the company?

c) Would a boxplot be useful in displaying the distribution of salaries in this company? Explain?

3. 60 AP Statistics students (30 females and 30 males) were surveyed on how many minutes they study each night. The data is given below:

Females:	Males:
180, 120, 180, 360, 240	90, 120, 30, 90, 200
120, 180, 120, 240, 170	90, 45, 30, 120, 75
150, 120, 180, 180, 150	150, 120, 60, 240, 300
200, 150, 180, 150, 180	240, 60, 120, 60, 30
120, 60, 120, 180, 180	30, 230, 120, 95, 150
90, 240, 180, 115, 120	0, 200, 120, 120, 180

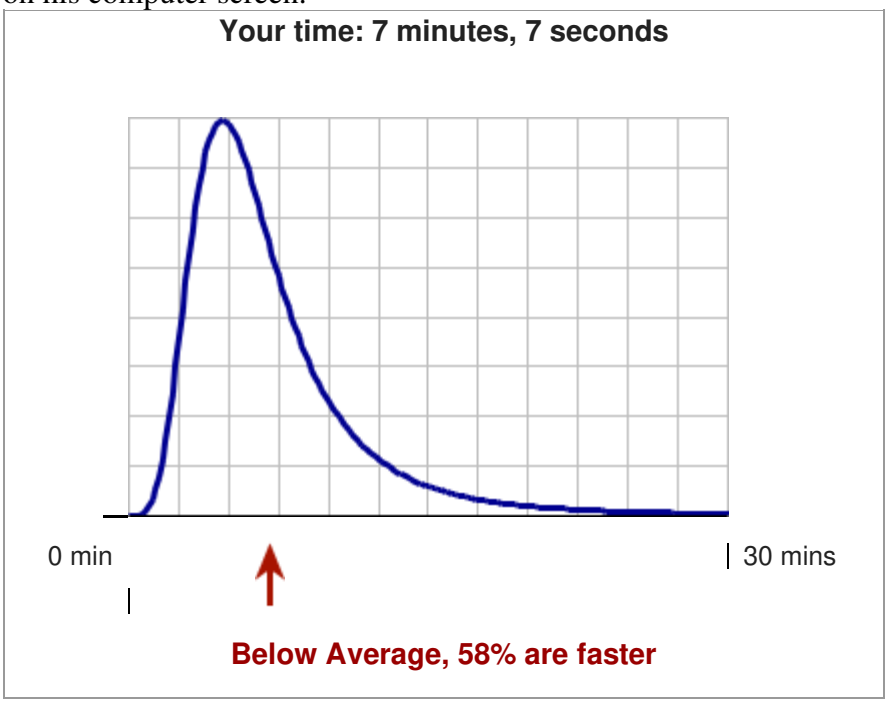
a) Find the Five number summaries and measures of central tendencies from both sets of data

b) Draw a box plot for each set of data and describe each distribution

c) Draw a histogram for each set of data. What new information can you get from this display not found with the boxplot? Are there any outliers?

d) Write a few sentences comparing the study times for both genders. Does it appear that females study more than males? Explain:

4. While relaxing one day, Peter played a game of Web Sudoku. When he finished, the following display appeared on his computer screen.



Easy average time: 6 minutes, 31 seconds

i) The density curve in the display was based on four million puzzles solved in one week at this Web site. Describe this distribution of solution times. Explain why the shape of the distribution is what it is.

ii) How did Peter do? Use percentiles, standardized values (z-scores), and raw data to help answer this question.

iii) Elsewhere on this Web site, Peter found the following statement: "The Average shown is the median rather than the mean, since the time distribution is positively skewed." Explain what this statement means.

iv) Suppose we know that the average time was 6.5 minutes with a standard deviation of 1.9minutes. Can we use this information to determine the number of participants that lie within one standard deviation? Explain: