

A.P. Statistics
Assignment 1.8

Remember to show your thinking through your work.

I have a data set consisting of 33 whole number observations. Its five-number summary is

(16, 20, 22, 30, 46).

1. What is the range of the data?

<type answer here>

2. Tell what the five numbers in the five-number summary represent. Be specific.

<type answer here>

3. How many observations are strictly less than 22?

<type answer here>

4. Is it possible that there is no observation equal to 22? Explain *briefly*.

<type answer here>

5. How many observations are strictly less than 20?

<type answer here>

6. Is it possible that there is no observation equal to 20? Explain *briefly*.

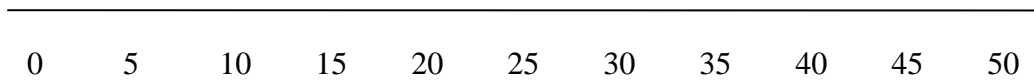
<type answer here>

7. Test for outliers. Are there any outliers?

<type answer here>

8. Construct a boxplot.

<type answer here – use the drawing toolbar to put lines and rectangles>



9. Approximately where is the mean? Briefly explain your reasoning.

<type answer here>

10. A wide variety of oak trees grow in the United States. In one study a sample of acorns was collected from different locations, and their volumes, in cm^3 , were recorded. In the table at right are summary statistics for these data.

Acorn Statistics

Statistic	Value
N	38
Mean	3.0
Median	1.8
St. Dev.	2.6
Minimum	0.3
Maximum	10.5
1st Quartile	1.1
3rd Quartile	4.3

(a) Describe a **procedure** that uses these some or all of these summary statistics to determine whether outliers are present in the data.

<type answer here>

(b) Using your procedure from part (a), determine if there are outliers in these data.

<type answer here>



11. The following problem is an actual problem from a past AP exam. Show all your work. Indicate clearly the methods you use, because you will be graded on the correctness of your methods as well as on the accuracy of your results and explanation.

5. At a school field day, 50 students and 50 faculty members each completed an obstacle course. Descriptive statistics for the completion times (in minutes) for the two groups are shown below.

	Students	Faculty Members
Mean	9.90	12.09
Median	9.25	11.00
Minimum	3.75	4.50
Maximum	16.50	25.00
Lower quartile	6.75	8.75
Upper quartile	13.75	15.75

- (a) Use the same scale to draw boxplots for the completion times for students and for faculty members.
(b) Write a few sentences comparing the variability of the two distributions.
(c) You have been asked to report on this event for the school newspaper. Write a few sentences describing student and faculty performances in this competition for the paper.

<type answer here>

0 5 10 15 20 25