Assignment 5

Q. In a nursery 200 plants of a particular species is grown. The heights of each plant (in cm) is recorded a month after plantation and the data is stored in a data vector **plant.**

Plant Heights:

20.5, 25.7, 19.0, 24.2, 22.0, 29.7, 18.1, 24.3, 21.4, 22.5, 24.7, 19.5, 19.4, 28.9, 29.9, 25.4, 26.5, 25.0, 28.6, 27.5, 31.0, 27.9, 22.4, 25.2, 29.6, 29.2, 19.0, 27.9, 24.3, 23.7, 29.1, 23.7, 22.8, 30.6, 22.2, 18.1, 27.8, 18.3, 20.8, 24.7, 20.1, 27.6, 18.3, 19.1, 29.0, 27.3, 28.3, 26.6, 25.0, 17.6, 24.7, 24.3, 23.9, 22.5, 26.8, 29.9, 24.5, 25.9, 28.5, 22.6, 27.6, 20.8, 23.3, 22.0, 19.9, 25.2, 17.5, 23.9, 21.9, 25.4, 29.5, 19.2, 29.4, 25.7, 28.3, 28.3, 20.9, 19.8, 26.6, 26.0, 25.6, 28.9, 24.5, 27.6, 27.0, 30.5, 25.4, 28.8, 24.3, 28.8, 22.7, 23.0, 26.0, 26.9, 22.3, 30.1, 20.4, 26.7, 26.4, 21.8, 20.9, 19.8, 28.2, 19.6, 26.8, 17.9, 22.6, 22.0, 29.0, 24.1, 17.9, 21.6, 29.8, 28.3, 25.5, 27.0, 27.2, 30.1, 24.6, 21.2, 26.3, 22.2, 18.8, 25.2, 28.0, 29.3, 21.2, 23.7, 27.0, 20.7, 23.5, 29.5, 29.5, 30.9, 19.6, 17.9, 24.2, 21.3, 23.5, 19.3, 18.4, 25.2, 27.5, 22.9, 20.8, 28.2, 24.4, 28.0, 30.0, 17.7, 26.1, 18.8, 27.8, 24.1, 18.7, 23.6, 28.5, 24.2, 24.9, 21.3, 22.4, 27.8, 19.9, 25.6, 23.8, 23.5, 22.2, 23.9, 24.7, 22.0, 24.5, 28.2, 24.0, 26.7, 24.7, 20.9, 19.9, 22.7, 29.7, 20.5, 28.5, 26.8, 30.5, 25.0, 20.9, 24.5, 27.2, 21.6, 20.7, 27.2, 28.5, 20.2, 21.3, 19.7, 24.8, 25.3, 30.5, 24.6, 30.2, 27.8

1. The mean square deviation around median of the data on **plant** is

2. The absolute mean deviation around arithmetic mean of the data on **plant** is

3. The outcome of the **summary** command when executed over the data on **plant** is

```
> summary(plant)
   Min. 1st Qu.  Median  Mean  3rd Qu.   Max.
  17.50   21.60   24.60   24.51   27.60   31.00
```

The quartile deviation based on this outcome is

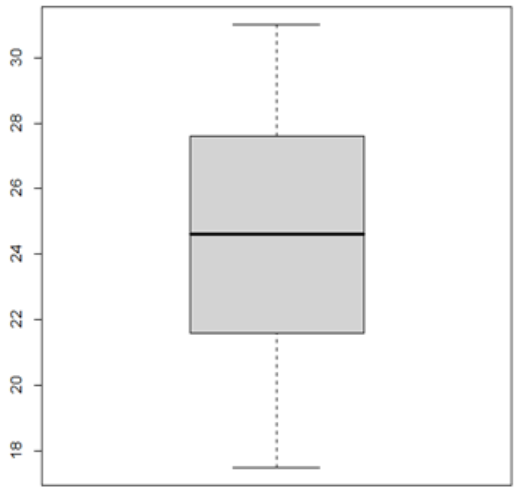
4. The product of coefficient of variation and median of the data on **plant** is

5. The value of interquartile range for the data on **plant** is

6. The value of range for the data on **plant** is

7.

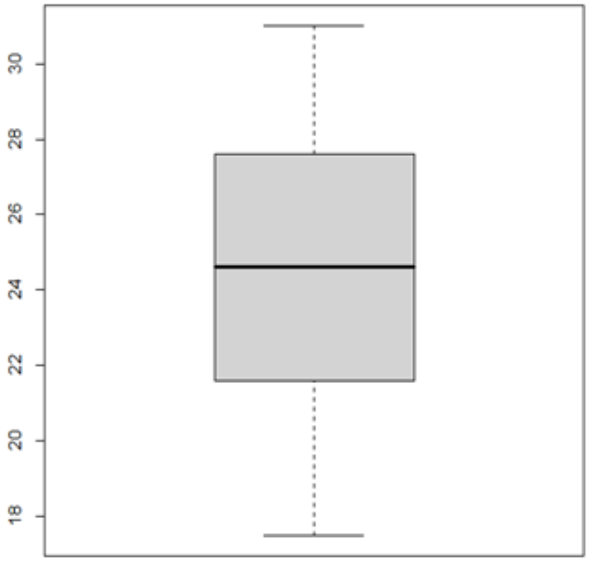
The boxplot of the data on plant is



The value of median based on this boxplot is

8.

The boxplot of the data on plant is



The difference between minimum value and first quartile based on this boxplot is

9. The arithmetic means and variances of the two data sets on chemical output in two different production facilities are obtained. Based on the information provided by the coefficient of variations, which of the data set has more variability?

Data set	Arithmetic mean	Variance
First	100 liters	16 square liters
Second	1800 liters	324 square liters

Q. In a nursery 200 plants of a particular species is grown. The heights of each plant (in cm) is recorded a month after plantation, however, 5 values are missing and are expressed as **NA.** The data is stored in a data vector **plantna.**

Plant Heights:

20.5, 25.7, 19.0, 24.2, 22.0, 29.7, 18.1, 24.3, 21.4, 22.5, 24.7, 19.5, 19.4, 28.9, 29.9, 25.4, 26.5, 25.0, 28.6, 27.5, 31.0, 27.9, 22.4, 25.2, 29.6, 29.2, 19.0, 27.9, 24.3, 23.7, 29.1, 23.7, 22.8, 30.6, 22.2, 18.1, 27.8, 18.3, **NA**, 24.7, 20.1, 27.6, 18.3, 19.1, 29.0, 27.3, 28.3, 26.6, 25.0, 17.6, 24.7, 24.3, 23.9, 22.5, 26.8, 29.9, 24.5, 25.9, 28.5, 22.6, 27.6, 20.8, 23.3, 22.0, 19.9, 25.2, 17.5, 23.9, 21.9, 25.4, 29.5, 19.2, 29.4, 25.7, 28.3, 28.3, 20.9, 19.8, **NA**, 26.0, 25.6, 28.9, 24.5, 27.6, 27.0, 30.5, 25.4, 28.8, 24.3, 28.8, 22.7, 23.0, 26.0, 26.9, 22.3, 30.1, 20.4, 26.7, 26.4, 21.8, 20.9, 19.8, 28.2, 19.6, 26.8, **NA**, 22.6, 22.0, 29.0, 24.1, 17.9, 21.6, 29.8, 28.3, 25.5, 27.0, 27.2, 30.1, 24.6, 21.2, 26.3, 22.2, 18.8, 25.2, 28.0, 29.3, 21.2, **NA**, 27.0, 20.7, 23.5, 29.5, 29.5, 30.9, 19.6, 17.9, 24.2, 21.3, 23.5, 19.3, 18.4, 25.2, 27.5, 22.9, 20.8, 28.2, 24.4, 28.0, 30.0, 17.7, 26.1, 18.8, 27.8, 24.1, 18.7, 23.6, 28.5, 24.2, 24.9, 21.3, 22.4, 27.8, 19.9, 25.6, 23.8, 23.5, 22.2, 23.9, 24.7, 22.0, 24.5, 28.2, 24.0, 26.7, 24.7, 20.9, 19.9, 22.7, 29.7, 20.5, 28.5, 26.8, 30.5, 25.0, 20.9, 24.5, 27.2, 21.6, 20.7, 27.2, 28.5, 20.2, 21.3, 19.7, 24.8, 25.3, **NA**, 24.6, 30.2, 27.8

1. The correct command to find the mean squared deviation around median of the data on `plantna` is

2. The value of mean squared deviation around median of the data on **plantna** is

3. The value of absolute mean deviation around arithmetic mean of the data on **plantna** is

4. The value variance of the data on **plantna** is

5. The value of standard deviation of the data on **plantna** is

6. The value of coefficient of variation of the data on **plantna** is

7. Suppose the arithmetic means of two different data sets are known and the arithmetic mean of data set 1 is more than the arithmetic mean of data set 2. Which of the following statement is true?

    a. Variance of data set 1 is more than the variance of data set 2.

    b. Coefficient of Variation of data set 1 is more than the Coefficient of Variation of data set 2.

    c. Variance of data set 1 is more than the Coefficient of Variation of data set 2.

    d. Nothing can be concluded about the Variances and Coefficient of Variations of data sets 1 and 2.

8. Suppose the variances of two different data sets are known and the variance of data set 1 is more than the variance of data set 2. Which of the following statement is true?

    a. Arithmetic mean of data set 1 is more than the arithmetic mean of data set 2.

    b. Median of data set 1 is more than the median of data set 2.

    c. Arithmetic mean of data set 1 is more than the median of data set 2.

    d. Nothing can be concluded about the arithmetic means and medians of data sets 1 and 2.