

Answer on Question #46343 - Math - Statistics and Probability

6. The following set of data is from a sample of n=10)

7 4 9 7 12 8 10 15 7 9

- a. Compute the mean, median, and mode.
- b. Compute the first, second and third quartiles.
- c. Compute the range, variance, standard deviation, and coefficient of variation
- d. Compute the Z scores. Are there any outliers?

Solution

a. The mean is 8.8

The median is 8.5

The mode is 7 (the most common number).

R code:

```
c <- c(7,4,9,7,12,8,10,15,7,9)
```

```
mean(c)
```

```
median(c)
```

b. The first quartile is 7.5

The second quartile is 8.5

The third quartile is 9.75

R code:

```
quantile(c)
```

c. Compute the range, variance, standard deviation, and coefficient of variation

The range is 4-15

The variance is 9.29

The standard deviation is 3.05

The coefficient of variation is 34.63%

R code:

```
range(c)
```

```
var(c)
```

```
sd(c)
```

```
100*sd(c)/mean(c)
```

d. Compute the Z scores. Are there any outliers?

c	z
7	-0.59
4	-1.57
9	0.07
7	-0.59
12	1.05
8	-0.26
10	0.39
15	2.03
7	-0.59
9	0.07

There are no outliers because there are no z-scores greater than 3 or less than -3. Value 15 is a

potential outlier with z-score more than 2.

R code:

```
z <- format((c - mean(c))/sd(c), digits=1)
cbind(c,z)
```