

# DESCRIPTIVE STATISTICS: PRACTICE 1

## STUDENT LEARNING OUTCOMES:

- THE STUDENT WILL CALCULATE AND INTERPRET THE CENTER, SPREAD, AND LOCATION OF THE DATA.
- THE STUDENT WILL CONSTRUCT AND INTERPRET HISTOGRAMS AND BOX PLOTS.

## GIVEN:

Sixty-five randomly selected car salespersons were asked the number of cars they generally sell in one week. Fourteen people answered that they generally sell three cars; nineteen generally sell four cars; twelve generally sell five cars; nine generally sell six cars; eleven generally sell seven cars.

## COMPLETE THE TABLE

Complete the table below using the data provided.

Data Value (# cars)	Frequency	Relative Frequency	Cumulative Relative Frequency

## DISCUSSION QUESTIONS

### EXERCISE 1

WHAT DOES THE FREQUENCY COLUMN SUM TO? WHY?

### EXERCISE 2

WHAT DOES THE RELATIVE FREQUENCY COLUMN SUM TO? WHY?

### EXERCISE 3

WHAT IS THE DIFFERENCE BETWEEN RELATIVE FREQUENCY AND FREQUENCY FOR EACH DATA VALUE?

### EXERCISE 4

WHAT IS THE DIFFERENCE BETWEEN CUMULATIVE RELATIVE FREQUENCY AND RELATIVE FREQUENCY FOR EACH DATA VALUE?

## ENTER DATA

Enter your data into your calculator or computer.

## CONSTRUCT A HISTOGRAM

Determine appropriate minimum and maximum x and y values and scaling. Sketch the histogram below. Label the horizontal and vertical axes with words. Include numerical scaling.



## Data Statistics

Calculate the following values:

### EXERCISE 5

Sample Mean =  $\bar{x}$

### EXERCISE 6

Sample standard deviations =  $s_x =$

### EXERCISE 7

Sample size =  $n =$

## CALCULATIONS

Use the table in section 2.11.13 to calculate the following values:

### EXERCISE 8

Median =

### EXERCISE 9

Mode =

### EXERCISE 10

First quartile =

### EXERCISE 11

Second quartile = median = 50<sup>th</sup> percentile =

### EXERCISE 12

Third quartile

### EXERCISE 13

Interquartile range (IQR) = \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

### EXERCISE 14

10<sup>th</sup> percentile =

### EXERCISE 15

70<sup>th</sup> percentile =

### EXERCISE 16

Find the value that is 3 standard deviations:

- a. Above the mean
- b. Below the mean

## BOX PLOT

Construct a box plot below. Use a ruler to measure and scale accurately.

## INTERPRETATION

Looking at your box plot, does it appear that the data are concentrated together, spread out evenly, or concentrated in some areas, but not in others? How can you tell?