SAMPLING AND DATA: PRACTICE

STUDENT LEARNING OUTCOMES:

- The student will practice constructing frequency tables.
- The student will differentiate between key terms.
- The student will compare sampling techniques.

GIVEN:

Studies are often done by pharmaceutical companies to determine the effectiveness of a treatment program. Suppose that a new AIDS antibody drug is currently under study. It is given to patients once the AIDS symptoms have revealed themselves. Of interest is the average length of time in months patients live once starting the treatment. Two researchers each follow a different set of 40 AIDS patients from the start of treatment until their deaths. The following data (in months) are collected.

Researcher 1: 3; 4; 11; 15; 16; 17; 22; 44; 37; 16; 14; 24; 25; 15; 26; 27; 33; 29; 35; 44; 13; 21; 22; 10; 12; 8; 40; 32; 26; 27; 31; 34; 29; 17; 8; 24; 18; 47; 33; 34

Researcher 2: 3; 14; 11; 5; 16; 17; 28; 41; 31; 18; 14; 14; 26; 25; 21; 22; 31; 2; 35; 44; 23; 21; 21; 16; 12; 18; 41; 22; 16; 25; 33; 34; 29; 13; 18; 24; 23; 42; 33; 29

ORGANIZE THE DATA

Complete the tables below using the data provided.

Researcher 1

Survival Length (in months)	Frequency	Relative Frequency	Cumulative Relative Frequency
0.5 - 6.5			
6.5 - 12.5			
12.5 - 18.5			
18.5 - 24.5			
24.5 - 30.5			
30.5 - 36.5			
36.5 - 42.5			
42.5 - 48.5			

Researcher 2

Survival Length (in months)	Frequency	Relative Frequency	Cumulative Relative Frequency
0.5 - 6.5			
6.5 - 12.5			
12.5 - 18.5			
18.5 - 24.5			
24.5 - 30.5			
30.5 - 36.5			
36.5 - 42.5			
42.5 - 48.5			

KEY TERMS

Define the key terms based upon the above example for Researcher 1.

1. Population

2. Sample

3. Parameter

4. Statistic

5. Variable

6. Data

Discuss the following questions and then answer in complete sentences.

1. List two reasons why the data may differ.

2. Can you tell if one researcher is correct and the other one is incorrect? Why?

3. Would you expect the data to be identical? Why or why not?

4. How could the researchers gather random data?

5. Suppose that the first researcher conducted his survey by randomly choosing one state in the nation and then randomly picking 40 patients from that state. What sampling method would that researcher have used?

6. Suppose that the second researcher conducted his survey by choosing 40 patients he knew. What sampling method would that researcher have used? What concerns would you have about this data set, based upon the data collection method?