Week #1

1. (2 pts)

Match the vocabulary words with the definitions.

a number that is used to represent a population characteristic and that generally cannot be determined easily a study in which the independent variable is not manipulated by the researcher if it is the result of measuring a characteristic of interest for each person or object in a population any individual or object to be measured

Vocabulary Terms

- Parameter
- Experimental Unit
- Observational Study
- continuous data
- Variable

Definitions

1. a study in which the independent variable is not manipulated by the researcher
    - **Observational Study**
2. a characteristic of interest for each person or object in a population
    - **Variable**
3. if it is the result of measuring
    - **continuous data**
4. a number that is used to represent a population characteristic and that generally cannot be determined easily
    - **Parameter**
5. any individual or object to be measured
    - **Experimental Unit**

Take a look at the Key Terms on pages 45 and 46.

2. (2 pts)

In a study, the data you collect is the temperature in Celsius.

This data is:

A. Quantitative Discrete

B. Quantitative Continuous

C. Qualitative (Categorical)

The temperature is a ratio level measurement. As a result, it is quantitative continuous variable.

3. (3 pts)

Determining the type of data

Your favorite basketball team

The data type is

A. Quantitative Discrete

B. Qualitative

C. Quantitative Continuous

The basketball team name is a label or nominal measurement type. As a result, it is qualitative.

4. (3 pts)

Name the sampling method used in each of the following situations:

The Marketing Vice President for Apple wants information about the ages of its customers. Over the next two weeks, at a random selection of store locations, all customers receive a questionnaire to fill out asking for information about their age, as well as other variables of interest.

A. Stratified Random Sample

B. Systematic Random Sample

C. Cluster Random Sample

D. Convenience Sampling

E. Random Sample

The definition of a Cluster Random Sample is a method for selecting a random sample and dividing the population into groups (clusters); using a simple random sampling to select a set of clusters. Every individual in the chosen clusters is included in the sample. (Illowsky and Dean, 2016, pg. 45-46)

5. (3 pts)

Select the sampling method used in the following scenario.

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To determine the percentage of U.S. citizens who favor impeachment, you interview all relatives at your family reunion.

A. Cluster Sampling
B. Simple Random Sampling
C. Convenience Sampling
D. Systematic Sampling
E. Stratified Sampling

Convenience Sampling a nonrandom method of selecting a sample; this method selects individuals that are easily accessible and may result in biased data.

6. (3 pts)

Take a random sample of the data below.

178	179	204	221	250
256	265	276	296	303
390	404	409	420	477
497	532	563	635	714
720	722	760	888	897

The random numbers selected are the ith values from the above sample.

1)	7)	20)	22)	24)

Make sure you enter the values in ascending order.

1) 178
2) 265
3) 714
4) 722
5) 888

Move from left to right in the table above.

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7. (3 pts)

Take a Systematic Random Sample of 10 values from the 137 data values below.

107	112	119	130	139	141	143	158	167	168
173	179	187	197	229	233	239	245	246	251
254	256	262	268	270	286	288	298	303	305
312	316	319	324	331	332	333	360	364	367
386	388	389	393	394	396	410	416	422	427
428	430	434	441	447	461	465	469	473	475
477	480	484	488	516	521	523	536	539	541
546	547	551	553	559	565	574	577	579	590
592	594	598	603	607	610	626	635	636	638
641	642	652	653	665	671	672	673	681	688
694	695	697	721	722	723	736	747	749	751
753	755	773	779	782	788	791	797	799	808
811	815	816	826	832	833	834	841	843	845
847	864	870	877	887	896	900			

Determine the kth value: 137/10 = 13.7 or 13
Always round down to make sure you will select 10 data points.

The first value is the eleventh value.

Enter the sample values in ascending order. (Read across each row starting in the upper left-hand corner of the table of values.)

Start off with 11 and then add 13 to each value to get the data points you will select.

11) 173
24) 268

37) 333
50) 427
63) 484

76) 565

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89) 636
102) 695
115) 782
128) 841

1) 1732) 268 3) 333 4) 427 5) 484 6) 565 7) 636 8) 695 9) 782 10) 841

8. (3 pts)

From the Groups below randomly select 10 people using the Stratified Random Sample.

Item No.	Group 1	Group 2
1	Monique	Alice
2	Kelsey	Bria
3	Morgan	Erin
4	Katie	Kelsey
5	Holly	Julia
6	Chloe	Kathryn
7	Bria	Megan
8	Karissa	Kelly
9	Stacy	Cassandra
10	Emma	Krystal
11	Christy	Vanessa
12	Alma	Maggie
13	Brianna	Karen
14	Cristina	Elizabeth
15	Nina	Ciara
16	Shannon	Nicole
17	Rebecca	Carrie
18	Taylor	Adriana
19	Angela	Hanna
20	Vanessa	Wendy
21	Delaney	Jane
22	Carrie	
23	Victoria	

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Item No.	Group 1	Group 2
24	Ashley	
25	Kylie	
26	Jacqueline	
27	Michelle	
28	Zoe	
29	Shantel	

Number of Individuals randomly selected from Group 1:

Random numbers from Group 1:

25) 13) 27) 5) 3) 23)

Number of Individuals randomly selected from Group 2:

Random numbers from Group 2:

17) 2) 13) 7)

Find the name next to the number listed above.

Grp 1	Kylie	Brianna	Michelle	Holly	Morgan	Victoria		
Grp 2	Carrie	Bria	Karen	Megan				

9. (3 pts)

From the Groups below randomly select 14 people using the Stratified Random Sample.

item No.	Group 1	Group 2
1	Paul	Tatiana

2	Trevor	Ashley
3	Warren	Amanda
4	Joseph	Monique
5	Tristan	Hillary
6	Wade	Paige
7	Kevin	Jane
8	Brian	Emma
9	Alan	Taylor
10	Danny	Shannon
11	Bryce	Alexis
12	Armando	Rachael
13	Michael	Ashton
14	Antonio	Melissa
15	Corey	Summer
16	Bill	Destiny
17	Donald	Danielle
18	Jeff	Megan
19	Jesse	Rebecca
20	Salvador	Meredith
21	Diego	Sonya
22	Taylor	Carrie
23	Chance	Andrea
24		Crystal
25		Patricia
26		Claudia
27		Natasha

The total number of individuals in both groups is 23+27 = 50

Number of Individuals randomly selected from Group 1:

The number of students that will be selected from Group 1 is 14*23/50 = 6.44

Number of Individuals randomly selected from Group 2;

Th number of students that will be selected from Group 2 is 14*27/50 = 7.56

Round the number in Group 1 to 6. Round the number

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Key - Form 1

1. d e a c b
2. Quantitative Continuous
3. Quantitative Discrete data results from counting objects. Quantitative Continuous data is a fraction, decimal, or irrational number. Qualitative data is a categorical data (labels and labels with order).See page 9 in the Introduction to Business Statistics textbook.
4. Cluster Random Sample
5. Convenience Sampling - a non random sampleCluster Sample is a random sample of groups where each element in the group is measured.Stratified Sampling is a random sample taken from of each naturally occurring group.Systematic Sampling is a random sample that select every kth element from a list or group of objectsSimple Random Sample is a random sample from a list of elements of a population.
6. 178 ~ 265 ~ 714 ~ 722 ~ 888
7. 173 ~ 268 ~ 333 ~ 427 ~ 484 ~ 565 ~ 636 ~ 695 ~ 782 ~ 841 ~ 13
8. Kylie ~ Brianna ~ Michelle ~ Holly ~ Morgan ~ Victoria ~ ~ ~ ~ ~ ~ Carrie ~ Bria ~ Karen ~ Megan ~ ~ ~ ~ ~ ~ ~
9. 6 ~ 8
