

201 Quiz 1: 15 min

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CORRECTION

Question 1:

Objective of a **SIMPLE RANDOM** sampling is:

1. to select **n** units out of **N** such that each element has an equal chance of being selected.
2. use a table of random numbers, a computer random number generator, or a mechanical device to select the sample.

Question 2:

Here are the steps you need to follow in order to achieve a **SYSTEMATIC** random sample:

- number the units in the population from **1** to **N**
- decide on the **n** (sample size) that you want or need
- $k = N/n$ = the interval size
- randomly select an integer between **1** to **k**
- then take every **k**th unit

Question 3:

A **STRATIFIED** random sampling, also sometimes called proportional or quota random sampling, involves dividing your population into homogeneous subgroups and then taking a simple random sample in each subgroup. In more formal terms:

Divide the population into non-overlapping groups $N_1, N_2, N_3, \dots, N_i$, such that $N_1 + N_2 + N_3 + \dots + N_i = N$.

Then do a simple random sample of (n/N) in each group.

Question 4:

In **CLUSTER** sampling, we follow these steps:

1. Divide population into groups (usually along geographic boundaries).
2. Randomly sample groups.
3. Measure all units within sampled groups .

Question 5:

There are typically four levels of measurement that are defined:

1. **NOMINAL**
2. **INTERVAL**
3. **ORDINAL**
4. **RATIO**

Question 6:

In **NOMINAL** measurement the numerical values just "name" the attribute uniquely. No ordering of the cases is implied.

In **ORDINAL** measurement the attributes can be rank-ordered. Here, distances between attributes do not have any meaning.

In **INTERVAL** measurement the distance between attributes does have meaning.

Question 7:

Fill in the empty space with: Nominal, Ratio, Interval or Ordinal:

(1) Players numbers in basketball are measures at the **NOMINAL** level. A player with number **30** is not more of anything than a player with number **15**, and is certainly not twice whatever number **15** is.

(2) When we measure temperature (in Fahrenheit), the distance from **30** to **40** is same as distance from **70** to **80**. The interval between values is interpretable. Because of this, it makes sense to compute an average of an

interval variable, where it doesn't make sense to do so for (**ORDINAL OR NOMINAL, BOTH ARE CORRECT**) scales.

But note that in **INTERVAL** measurement, ratios don't make any sense, **80** degrees is not twice as hot as **40** degrees (although the attribute value is twice as large).

(3) In *RATIO* measurement, there is always an absolute **zero** that is meaningful. This means that you can construct a meaningful fraction with a ratio variable. (0.5 POINT)

(4) The number of new clients for a phone company in past six months is a **RATIO** measurement. Because you can have **zero** clients and because it is meaningful to say that "we had twice as many clients in the past six months as we did in the previous six months."

Question 8:

On a survey you might code Educational Attainment as

Educational Attainment	code
less than High School	0
Some High School	1
High School degree	2
Some college	3
College degree	4
Post college	5

In this measure:

1. Do higher numbers mean more education? **YES**
2. Is distance from **0** to **1** same as **3** to **4**? **NO**
3. What kind of measure is this one? **ORDINAL**