

PSYCH 10 Tutorial Session · Fall 2026

Week 1 · Orientation Day at Strangeford · Answer key

Full name (in CAPITAL LETTERS)	SUNet ID (the part before @stanford.edu)	Student ID number
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Answer key

Please write legibly, in CAPITAL LETTERS, so the teaching team can log your attendance: if we can't read your name, we can't give you credit.

Turn this in to your tutorial leaders at the end of the session.

The situation

Welcome to **Strangeford University** (motto: *Truth in Variation*), where the data are always a little strange. You've just been hired as the campus's newest **data detectives**. From next Friday on, you'll be sent to whichever corner of campus has a problem with its numbers.

Today is orientation. **Q. Ledger**, the University Archivist, has two jobs for you before you get your badge. First, the Archive files every fact about a person in one of two drawers, *quantitative* or *categorical*, and a new clerk has been putting anything written in digits into the quantitative drawer. Ledger suspects some of it is misfiled. Second, every detective keeps a case file of numbers from out in the world that deserve a second look. Today you open yours.

Part 1 — Which drawer?

Here are nine variables the Archive records for every student, with an example value for each. Decide together which drawer each one belongs in, and write **Q** or **C** in the last column.

- **Quantitative (Q):** the value is an amount. A bigger number means more of something, and the gap between two values is itself an amount.
- **Categorical (C):** the value is a label. It says which group or which individual, not how much.

	Variable	Example value	Q or C?
1	Height	67 inches	Q
2	Dorm	Wilbur	C
3	Number of siblings	2	Q
4	Major	Psychology	C
5	License plate	7XYZ123	C
6	Social Security number	987-65-4321	C
7	ZIP code of hometown	60615	C
8	Grade in a class	B+	C as a letter, Q as a score
9	Movie rating	4 stars	C (Q only if you treat the gaps as equal)

1. A Social Security number is written entirely in digits. So why did you file it where you did?

Because whether a value is written in digits isn't the test. A Social Security number picks out one person, like a name: nobody's number is bigger than anyone else's in any sense that matters, and if you averaged a column of them you would get a number that

doesn't mean anything, so it belongs in the categorical drawer along with license plates and ZIP codes (60615 is not more than 60614, and the average ZIP code of a table is not anyone's hometown).

2. A B+ can also be recorded as 3.3 grade points, or as 88%. Does how the grade is recorded change which drawer it goes in?

Yes, the way the grade is recorded changes the drawer. Recorded as a letter, B+ is an ordered label, since it is better than a B but the gap between the two isn't an amount; recorded as 88 percent, the same grade is an amount; and recorded as 3.3 grade points, it is a letter that somebody turned into an amount by a rule they chose, which is exactly the recipe for a GPA: letters converted to amounts by a chosen rule. So which drawer a grade goes in depends on how it was recorded and on the question at hand: if you only want to rank students, the order is enough, but if you want to ask whether students who sleep more do better in the class, the gaps between grades have to be amounts. The same reasoning applies to star ratings (row 9).

Takeaway: What kind of variable you have depends on what its values *mean*, not on whether they are written in digits. And some variables can go either way. Which way depends on the question you're asking: think about what you want to know, and then about which feature of the value matters for that question. Is it the order? The size of the gaps? Or just which group it names?

Part 2 — Your first claim

On your own. On Wednesday we took one number, the 10.2% poverty rate, and looked at where it came from. We asked two questions: *what was counted?* and *who was included?* Now it's your turn. Using your phone, find one claim in the news that uses a number to say something about a group of people: a percentage, an average, a "twice as likely," a ranking, a trend.

Take a screenshot so you can find it again, then fill in the lines below.

Where you found it (outlet or account, and the date): *any outlet, with the date it was published*

The claim, word for word or in your own words. Circle the number in it.

There is no single right answer here, because everyone finds a different claim; anything that uses a number to say something about a group of people counts (a percentage, an average, a "twice as likely," a ranking, a trend), and what matters is the two questions underneath the claim.

What was counted or measured? (For the poverty rate: people in families whose income is below a set threshold.)

Something that a person could actually count or measure, such as "whether a student reported sleeping under six hours," rather than the number itself or the claim written out a second time.

Who was included? (For the poverty rate: the people at about 88,000 addresses that the Census Bureau interviewed.)

The people the data actually came from (for example, "1,000 adults a pollster called"), which is often a smaller or different group than the one the claim is about ("Americans"), and the gap between those two groups is the whole point of the question. "Doesn't say" is a perfectly good answer when it's true, as long as you have checked the article's last paragraph and its links.

If the article doesn't say, write "doesn't say." That happens a lot, and it's worth noticing!

With a neighbor. Pass your case file to the person on your left. Read the claim you were handed, then write down one question you'd want to ask the writer about the number. For example: Compared with what? How many people? When? It's totally fine to write on their case file; that's the point! If their claim isn't filled in yet, have them tell you about it.

Your question:

Any question whose answer would change the meaning of the number: compared with what? how many people? when? measured how? and which people were left out of the count?

Your name: _____

Keep noticing claims like this. Once you start looking, they're everywhere.