

Name:

Statistics

Date:

Practice Quiz 7-D

1. For each study, state the procedure you would recommend for the following studies. For any that you do not use a within-subjects design, explain why not.

Within-subjects designs are generally used unless this would result in substantial sequence effects or it is too difficult to have everyone do both versions.

a) Are employees more productive if music is playing?

b) Is one version of this quiz (7-D) more difficult than the other?

c) Do students who turn in homework on time get higher test scores on average than those who don't?

d) Are people more likely to notice the gorilla if they are watching the black team than if they are watching the white team?

2. Will takes the temperatures of eight participants before and after they are in a hot sauna for five minutes.

a) What is his null hypothesis for a two-tailed test?

A null hypothesis states that there is no difference.

b) His data (in degrees Celsius) are shown below. Calculate \bar{x} and s for the differences.

Subtract each pair in the same direction, and then calculate the sample mean and standard deviation of the differences.

initial temperature:	37.0	37.4	37.1	36.6	36.8	37.1	37.5	37.2
temperature after sauna:	36.8	37.1	37.2	37.0	36.5	36.8	37.0	37.0

c) Label the critical values on the curve and shade the critical regions.

Shade 5% of the curve.

d) Calculate t and label it on the curve.

Use the t formula.

e) Are his data statistically significant?

Is t in the critical region?

f) Express the conclusion in a sentence, followed by $t(df)$ and a p value range.

He either can or cannot make a claim about the population. If he makes a claim, the direction of the claim must be clearly stated and must match his alternate hypothesis.

Either way, follow with the calculated value of t (with df) and one of the following: $p > .05$, $p < .05$, $p < .01$, or $p < .001$.

3. Bella is testing to see if younger siblings are more conscientious than older siblings. She gets 22 same-sex sibling pairs and gives each participant a personality test. She finds that younger siblings score on average 4.6 points lower on the trait of conscientiousness, with $s = 12.5$. Express the conclusion in a sentence, followed by $t(df)$ and a p value range.

Follow the above process, except the sample mean difference and standard deviation are already calculated.

