

Problem Set: Chapter 12 Comparing 2 means

Name: _____

Discussion among students is encouraged but all answers must be written in your own words. Points will be deducted if your answers are identical to other students.

Stalk-eyed flies

Ch 12 18	a)	What is the best test to use: 1-tailed t-test / paired t-test / <u>2-sample t-test</u> Why: 2 separate/independent groups; flies are not measured twice but only once each; data not paired
	new	What is the sample size within each diet group? <u>21, 24</u>
	new	What type of variable is "diet" <u>categorical</u>
	new	There are fewer bars in the corn diet histogram (4 bars) vs. cotton diet (11ish). Why?

Genes *per* versus *tim* mutations

19	new	What is the impact on "power" of the samples sizes being different? Power is Increased / <u>decreased</u> / not changed / the concept of power isn't relevant here
	b	Are the variances (var) the same or different? <u>Same / different</u> Show calculation:
	new	What is the best test to use: 1-tailed t-test / paired t-test / <u>2-sample t-test</u> Why: data not paired, samples independent, etc

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Problem Set: Chapter 12

Electric fish

20	new	What is the best test to use: 1-tailed t-test / <u>paired t-test</u> / 2-sample t-test Why: 2 samples were taken from each river; the "upstream" and "downstream" samples are paired; they are not independent or separate.
	c	What " assumptions " do you have to make to carry out this analysis? 1) data were randomly sampled 2) paired differences (not raw data) are normally distributed see page 334

Seals

24	new	What is the best test to use: 1-tailed t-test / <u>paired t-test</u> / 2-sample t-test Why: each individual seal was measured twice - this is a "Before-after" study; samples are not independent b/c they come from the same individual animal
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Hyeanas

26	new	What is the best test to use: 1-tailed t-test / <u>paired t-test</u> / 2-sample t-test Why: HYEANA: The dominant and subordinate individual make up a pair - the animals interact socially; note that the word "pair" occurs w/in the body of the question. MOSQUITOS: Before-After comparisons; each participant measured twice.
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Bluegills

30		What is wrong with this conclusion: [there is actually a typo in this question. Where it says "The researchers should use a two-sample method" it should say "one sample". As written you can mostly tell what the problem is] Fallacy of indirect comparisons - see page 344-345. They do two separate comparisons instead a single direct comparison. One hypothesis was "not rejected for offspring from parental males" while the other hypothesis "was rejected for offspring from cuckold males".
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What analysis should've been done? **They should do a direct comparison using a 2-sample test instead of 2 separate tests**