AP Biology 2016- 2017
Wilkening

Practice Chi Square Problem

4. Suppose you take a random sample of 30 students who are using a new math text and a second sample of 30 students who are using a more traditional text. You compare student achievement on the state test given to all students at the end of the course. Based on state test performance, would you recommend the new math book?

	Passed State Test	Failed State Test
New Textbook	26	4
Old Textbook	22	8

Pill Bug Animal Behavior Table. Use the data from your experiment to determine if there is a significant preference to your stimulus.

2/ 3 locations	start	end	average

Null Hypothesis:

Degrees of Freedom: Critical Value:

Reject/ Accept Null Hypothesis

Conclusion:

Practice Problem T Test

A research study was conducted to examine the differences between older and younger adults on perceived life satisfaction. A pilot study was conducted to examine this hypothesis. Ten older adults (over the age of 70) and ten younger adults (between 20 and 30) were given a life satisfaction test (known to have high reliability and validity). Scores on the measure range from 0 to 60 with high scores indicative of high life satisfaction; low scores indicative of low life satisfaction. The data are presented below. Compute the appropriate t-test.

Older Adults	Younger Adults
45	34
38	22
52	15
48	27
25	37
39	41
51	24
46	19
55	26
46	36
Mean =	Mean =
S =	S =
S^2 =	S^2 =

1. What is your experiment t-test value (computed t-test value from the data provided)?
2. What would be the null hypothesis in this study?
3. What would be the alternative hypothesis is this study?
4. What is your t_{crit} value?
5. Is there a significant difference between the two groups?
6. Interpret your answer.

Use this table to determine the significance with the water drop lab.

Mean $(\bar{x})$	$\bar{x}_1$ =	$\bar{x}_2$ =		
Sum of Squares $(SS) = \sum (x_i - \bar{x}_1)^2$			SS_1 =	SS_2 =
Variance $(s^2) = \frac{\sum(x_i - \bar{x})^2}{(n-1)}$			s_1^2 =	s_2^2 =
Standard deviation $s = \sqrt{\frac{\sum(x_i - \bar{x})^2}{(n-1)}}$			s_1 =	s_2 =
Standard error of the mean $SE_{\bar{x}} = \frac{s}{\sqrt{n}}$			$SE_{\bar{x}}$ =	$SE_{\bar{x}}$ =
95% CI $= \frac{2s}{\sqrt{n}}$			95% CI =	95% CI =

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