Elementary Statistics	**Name:** _____
Study Guide 28	**Class:** _____
Due Date: _____	**Score:** _____

Your solutions must be consistent with class notes & resources.

Be Neat, Organized, and No Work $\Leftrightarrow$ No Points

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1. A local nurse's union has done a study on salary of full-time nurses. The result of this study is summarized in the table below. Assume two population standard deviations are unknown and not equal.

Females	Males
$n_1 = 20$	$n_2 = 16$
$\bar{x}_1 = 7050$	$\bar{x}_2 = 6750$
$s_1 = 450$	$s_2 = 250$

(a) (2 points) Determine the pooling option and degrees of freedom when working with two population means μ_1 and μ_2.

(a) _____

(b) (3 points) Construct a 98% confidence interval for the difference between population means $\mu_1 - \mu_2$ using data in the table.

(b) _____

(c) (2 points) Compute the margin of error.

(c) _____

A local newspaper claims that the mean salary of all full-time female nurses is more than the mean salary of all full-time male nurses. Test this claim at $\alpha = 0.02$ by using the data in the table.

(d) (3 points) Clearly state H_0 , H_1, identify the claim and type of test.

H_0 : _____

H_1 : _____

(e) (3 points) Find all related critical values, draw the distribution, clearly mark and shade the critical region(s).

(f) (3 points) Find the computed test statistic and the P-value.

C.T.S. : _____ **P-Value :** _____

(g) (2 points) Use non-statistical terminology to state your final conclusion about the claim.

(g) _____

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2. Given: $n_1 = 15, \bar{x}_1 = 75.7, s_1 = 8.1, n_2 = 10, \bar{x}_2 = 65.2, s_2 = 5.5$ **, assume two population standard deviations are unknown and equal.**

(a) (2 points) Round given data to whole numbers, and then complete the following table.

Sample 1	Sample 2
$n_1 =$	$n_2 =$
$\bar{x}_1 =$	$\bar{x}_2 =$
$s_1 =$	$s_2 =$

(b) (2 points) Determine the pooling option and degrees of freedom when working with two population means μ_1 and μ_2.

(b) _____

(c) (2 points) Construct 98% confidence interval for the difference between population means $\mu_1 - \mu_2$ using data summarized in the table.

(c) _____

(d) (2 points) Compute the margin of error.

(d) _____

A researcher claims there is a difference between the two population means and wishes to use our summarized data in the table to perform a hypothesis testing between two population means.

(e) (2 points) Clearly state H_0 and H_1, and identify the type of test.

H_0 : _____

H_1 : _____

(f) (3 points) Using $\alpha = 0.02$ significance level, find and name all related critical values, draw the distribution, and clearly mark and shade the critical region(s).

(g) (3 points) Find the computed test statistic and the P-value.

C.T.S. : _____ **P-Value :** _____

(h) (2 points) Use non-statistical terminology to express your final conclusion about the researcher's claim.

(h) _____

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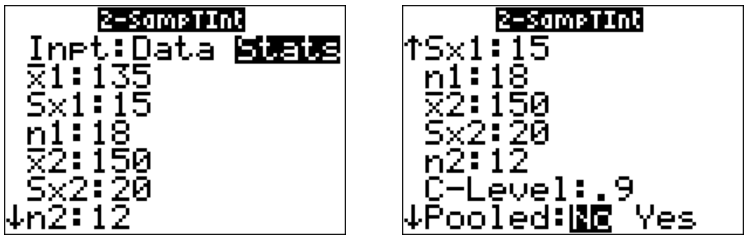
3. The following calculator displays present the information that a researcher has entered into the calculator in an attempt to find the confidence interval for the difference between two population means.



(a) (3 points) Write the confidence interval in proper mathematical notation, and find its margin of error. Round the final answer to a whole number.

(a) _____

(b) (3 points) Test the claim that the mean of population 2 is greater than the mean of population 1. Clearly state H_0 , H_1, identify the claim and type of test.

H_0 : _____

H_1 : _____

(c) (3 points) Find all related critical values, draw the distribution, clearly mark and shade the critical region(s).

(d) (3 points) Find the computed test statistic and the P-value.

C.T.S. : _____ **P-Value :** _____

(e) (2 points) Use non-statistical terminology to state your final conclusion about the claim.

(e) _____

Mistakes don't signify an end; they represent the start of learning.