Elementary Statistics	Name:
Study Guide 27	Class:
Due Date:	Score:

Your solutions must be consistent with class notes & resources.

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

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.

Females	Males
$n_1 = 60$	$n_2 = 48$
$\bar{x}_1 = 7050$	$\bar{x}_2 = 6750$
$s_1 = $ Not Given	$s_2 = $ Not Given
$\sigma_1 = 275$	$\sigma_2 = 250$

Table 1:
Monthly Salaries For Nurses

(a) **(3 points)** Construct a 98% confidence interval for the difference between population means $\mu_1 - \mu_2$ using data in table 1.

(a) ——————

(b) **(2 points)** Compute the margin of error.

(b) ——————

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 table 1.

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

H_0 : _____

H_1 : _____

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

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

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

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

(f) _____

2. **Given:** $n_1 = 50, \bar{x}_1 = 16.735, \sigma_1 = 1.14, n_2 = 45, \bar{x}_2 = 14.384, \sigma_2 = 1.592$

(a) **(2 points)** Round given data to one-decimal place, and then complete the following table.

Sample 1	Sample 2
$n_1 =$	$n_2 =$
$\bar{x}_1 =$	$\bar{x}_2 =$
$\sigma_1 =$	$\sigma_2 =$

(b) **(3 points)** Construct 99% confidence interval for the difference between population means $\mu_1 - \mu_2$ using data summarized in the table.

(b) _____

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

(c) _____

(d) **(2 points) Construct 90% confidence interval for the difference between population means $\mu_1 - \mu_2$ using data summarized in the table.**

(d) _____

A researcher claims there is no 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).**
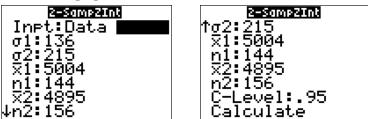
(g) **(3 points) Find the computed test statistic and the P-value.**

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

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

(h) _____

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.

```
2-SampZInt
Inpt:Data ▮
σ1:136
σ2:215
x̄1:5004
n1:144
x̄2:4895
↓n2:156
```

```
2-SampZInt
↑σ2:215
x̄1:5004
n1:144
x̄2:4895
n2:156
C-Level:.95
Calculate
```

(a) **(2 points)** Write the confidence interval in proper mathematical notation. Round your final answer to a whole number.

(a) _____

(b) **(2 points)** Find the margin of error.

(b) _____

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

H_0 : _____

H_1 : _____

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

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

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

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

(f) _____

Failure is not the opposite of success, when we learn from it.