Elementary Statistics	Name:
Study Guide 26	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. In a survey conducted recently by *ESPN-LA* radio in an attempt to find the proportion of residents of *LA* on being a Lakers fan or not. The result of this survey is given in the table below:

Females	Males
$x_1 = 22$	$x_2 = 28$
$n_1 = 38$	$n_2 = 52$

Table 1:
Are You A Laker Fan?

   (a) (**2 points**) Find the pooled proportion $\bar{P}$.

   (a) _____

   (b) (**3 points**) Construct a 95% confidence interval for the difference between population proportion $P_1 - P_2$ using data in table 1.

   (b) _____

   (c) (**1 point**) Compute the margin of error.

   (c) _____

   ESPN-LA radio claims that the proportion of all females that are Lakers fan is the same as the proportion of all males that are Lakers fan. Test this claim at $\alpha = 0.05$ by using the data in table 1.

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

$H_0 :$ _____

$H_1 :$ _____

(e) **(2 points)** Find all related critical values, draw the distribution, clearly mark and shade the critical region(s).

(f) **(2 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) _____

2. **(4 points)** An economist wishes to conduct a survey in two different cities in the same county to determine the difference in the proportions of residents who believe that economy is improving under president Trump. A 99% confidence interval is to be constructed for the difference between the proportions. If the sample sizes for both cities are to be equal, find the minimum sample size needed for each city so that the margin of error not to exceed 6%.

2. _____

3. **(3 points)** Consider $\hat{P}_1 = 0.585, n_1 = 110, \hat{P}_2 = 0.526,$ and $n_2 = 90,$ **Find the pooled proportion** $\bar{P}$.

3. _____

4. **(3 points)** In a survey conducted recently by CNN in an attempt to find the proportion of adults that have an active account with <u>Facebook</u>. Among 225 females, 73% of them had an active account, while among 194 males, 62% had an active account. Complete the table below.

Females	Males
$x_1 =$	$x_2 =$
$n_1 =$	$n_2 =$

Table 2:

Do You Have an Active Facebook Account?

Use the data in table **2** to answer the following parts.

(a) **(2 points)** Find the pooled proportion $\bar{P}$.

(a) _____

(b) **(3 points)** Construct a 95% confidence interval for the difference between population proportion $P_1 - P_2$ using data in table **2**.

(b) _____

(c) **(1 point)** Compute the margin of error.

(c) _____

CNN claims that the proportion of all females with an active account is greater than the proportion of all males with an active account. Test this claim at $\alpha = 0.05$ by using the data in table **2**.

(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) _____

5. The following calculator display presents confidence interval for the difference between two population proportions.


```
2-PropZInt
(-.0462,.12624)
p̂1=.24
p̂2=.2
n1=275
n2=225
```

(a) **(2 points)** Write the confidence interval in proper mathematical notation.

(a) _____

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

(b) _____

(c) **(5 points)** Use the P–value method to test the claim that the proportion of population 1 is greater than the proportion of population 2.

(c) _____

You do not have to be an overnight success to be successful.