

Name _____

1. In 1998, a San Diego reproductive clinic reported 42 live births to 157 women under the age of 38, but only 7 live births for 89 clients aged 38 or older. Is this strong evidence of a difference in the effectiveness of the clinic's methods for older women? Test the claim using $\alpha = 0.05$ and the traditional, P-value, and confidence methods. Show all calculations

Check Assumptions:

Null Hypothesis

Alternative Hypothesis

Test Statistic

Critical Value(s)

P-value

Confidence Interval

Decision and Reason (Traditional Method)

Decision and Reason (P-Value)

Decision and Reason (Confidence Interval)

Summarize:

2. The average credit card debt for a recent year was \$9205. Five years earlier the average credit card debt was \$6618. Assume sample sizes of 35 were used and the standard deviations of both samples were \$1928. Is there enough evidence to believe that the average credit card debt is now different? Test the claim using $\alpha = 0.05$ and the traditional, P-value, and confidence methods. Show all calculations

Null Hypothesis

Alternative Hypothesis

Test Statistic

Critical Value(s)

P-value

Confidence Interval

Decision and Reason (Traditional Method)

Decision and Reason (P-Value)

Decision and Reason (Confidence Interval)

Summarize:

3. Females and males alike from the general adult population volunteer an average of 4.2 hours per week. A random sample of 20 female college students and 18 male college students indicated the following results concerning the amount of time spent in volunteer service per week. At the 0.01 level of significance, is there sufficient evidence to conclude that female college students spend more time in volunteer service per week than male college students? You may assume that both samples come from normal populations.

	Males	Females
Sample mean	2.5	3.8
Sample variance	2.2	2.3

- a. Show that there is no reason to suspect the samples come from populations with different variances.

Null Hypothesis

Alternative Hypothesis

Test Statistic

Critical Value(s)

Decision and Reason:

Summarize:

- b. Test the claim in the original problem

Null Hypothesis

Alternative Hypothesis

Test Statistic

Critical Value(s)

Decision and Reason:

Summarize:

4. In 1970, a study determined that at 50 mph, the increase distance necessary to come to a complete stop when driving on wet pavement as opposed to dry was 60 ft. A tire company executive believes this has decreased (given the advances in the tire manufacturing process in recent years). To test the claim, he records the distance it takes for 10 different cars traveling 50 mph to come to a complete stop on wet and dry pavement. Use the traditional method.

Car	1	2	3	4	5	6	7	8	9	10
Dry Pavement	150	147	136	134	130	134	134	128	136	158
Wet Pavement	201	220	192	146	182	173	202	180	192	206

At $\alpha = 0.10$, is there evidence that the executive is correct?

Check assumptions:

Null Hypothesis

Alternative Hypothesis

Test Statistic

Critical Value(s)

Decision and Reason:

Summarize:

5. Nationally, at least 60% of Ph.D. students have paid assistantships. A college dean feels that his state has a lower proportion of Ph.D. students with paid assistantships, so he randomly selects 50 Ph.D. students and finds that 26 have assistantships. At $\alpha = 0.02$ is the dean correct? Use the P-value method.

Null Hypothesis

Alternative Hypothesis

Test Statistic

P-value

Decision and Reason

Summarize: