

In-Class
Sections 11.1-11.3

Name _____

- 1) The following display from a TI-84 Plus calculator presents the results of a hypothesis test for the difference between two means. The sample sizes are $n_1 = 9$ and $n_2 = 10$.

2-SampTTest
$\mu_1 > \mu_2$
$t = -3.366473$
$p = 0.001964$
$df = 15.933567$
$\bar{x}_1 = 72.925$
$\downarrow \bar{x}_2 = 111.084$

Can you reject H_0 rejected at the $\alpha = 0.10$ level?

- 2) Are low-fat diets or low-carb diets more effective for weight loss? A sample of 70 subjects went on a low-carbohydrate diet for six months. At the end of that time, the sample mean weight loss was 10.5 pounds with a sample standard deviation of 7.09 pounds. A second sample of 76 subjects went on a low-fat diet. Their sample mean weight loss was 18.0 with a standard deviation of 7.26. Can you conclude that the mean weight loss differed between the two diets? Use the $\alpha = 0.05$ level.
- State the appropriate null and alternate hypotheses.
 - Compute the test statistic.
 - How many degrees of freedom are there, using the simple method?
 - Do you reject H_0 ? State a conclusion.

3) In a random sample of 370 cars driven at low altitudes, 43 of them exceeded a standard of 10 grams of particulate pollution per gallon of fuel consumed. In an independent random sample of 80 cars driven at high altitudes, 23 of them exceeded the standard. Can you conclude that the proportion of high-altitude vehicles exceeding the standard is greater than the proportion of low-altitude vehicles exceeding the standard at an $\alpha = 0.05$ level of significance?

4) In an experiment to determine whether there is a systematic difference between the weights obtained with two different mass balances, six specimens were weighed, in grams, on each balance. The following data were obtained:

Specimen	A	B
1	13.76	13.74
2	12.47	12.45
3	10.09	10.08
4	8.91	8.92
5	13.57	13.54
6	12.74	12.75

Can you conclude that the mean weight differs between the two balances?

i). State the null and alternative hypotheses.

ii). Compute the test statistic.

iii). State a conclusion using the $\alpha = 0.05$ level of significance.

Answer Key

Testname: UNTITLED1

1) Yes

2) i). $H_0: \mu_1 = \mu_2$ versus $H_1: \mu_1 \neq \mu_2$

ii). -6.312

iii). 69

iv). Yes. There appears to be a difference in the mean weight losses.

3) Yes

4) i). $H_0: \mu_d = 0$, $H_1: \mu_d \neq 0$

ii). 1.464

iii). Do not reject H_0 . There is insufficient evidence to conclude that the meandifference differs from zero.