



- 5) A sociologist wants to determine if the life expectancy of people in Africa is less than the life expectancy of people in Asia. The data obtained is shown in the table below. 5) \_\_\_\_\_

Africa	Asia
$\bar{X}_1 = 63.3$ yr.	$\bar{X}_2 = 65.2$ yr.
$\sigma_1 = 9.1$ yr.	$\sigma_2 = 7.3$ yr.
$n_1 = 120$	$n_2 = 150$

Calculate the critical value. Use  $\alpha = 0.05$ .

- A) -2.33                      B) -1.65                      C) -2.58                      D) -1.96
- 6) A sociologist expects the life expectancy of people in Africa is different than the life expectancy of people in Asia. The data obtained is shown in the table below. 6) \_\_\_\_\_  
Determine the 95% confidence interval for the difference in the population means.

Africa	Asia
$\bar{X}_1 = 55.3$ yr.	$\bar{X}_2 = 65.2$ yr.
$\sigma_1 = 8.1$ yr.	$\sigma_2 = 9.3$ yr.
$n_1 = 53$	$n_2 = 42$

- A)  $-12.2 < \mu_1 - \mu_2 < -6.9$                       B)  $-11.4 < \mu_1 - \mu_2 < -7.6$   
C)  $-13.5 < \mu_1 - \mu_2 < -6.3$                       D)  $-16.3 < \mu_1 - \mu_2 < -6.0$
- 7) A test was made of  $H_0: \mu_1 = \mu_2$  versus  $H_1: \mu_1 < \mu_2$ . The sample means were  $\bar{x}_1 = 13$  and  $\bar{x}_2 = 12$ , the sample standard deviations were  $s_1 = 4$  and  $s_2 = 3$ , and the sample sizes were  $n_1 = 16$  and  $n_2 = 15$ . 7) \_\_\_\_\_

How many degrees of freedom are there for the test statistic?

- A) 16                      B) 14                      C) 15                      D) 11
- 8) In October, the campus bookstore asked a random set of freshmen and seniors how much they had spent on textbooks that semester. The bookstore believes that the two groups spent the same amount. What is an appropriate test value for a  $z$  test? 8) \_\_\_\_\_

	Freshmen	Seniors
Sample size	80	70
Sample mean	\$460	\$440
Population std. dev.	\$52	\$63

- A) 2.10                      B) 0.22                      C) 1.21                      D) 9.51

- 9) A test was made of  $H_0: \mu_1 = \mu_2$  versus  $H_1: \mu_1 < \mu_2$ . The sample means were  $\bar{x}_1 = 7$  and  $\bar{x}_2 = 11$ , the sample standard deviations were  $s_1 = 6$  and  $s_2 = 4$ , and the sample sizes were  $n_1 = 10$  and  $n_2 = 18$ . 9) \_\_\_\_\_

Compute the value of the test statistic.

- A) -4.411                      B) -2.935                      C) -0.555                      D) -1.888

- 10) A garden seed wholesaler wishes to test the claim that tomato seeds germinate faster when each individual seed is "pelletized" within a coating of corn starch. The table below shows the germination times, in days, of six pelletized seeds. The table also shows the germination times in days of six un-coated seeds (the controls). 10) \_\_\_\_\_

Pelletized:	9	9	10	8	6	6
Control:	9	11	12	9	12	11

Can you conclude that the mean germination time for pelletized seeds is less than the mean

for the un-pelletized seeds? Use the  $\alpha = 0.05$  level of significance.

- A) No    B) Yes

- 11) In a test of the difference between the two means below, what should the test value be for a  $t$  test? 11) \_\_\_\_\_

	Sample 1	Sample 2
Sample mean	680	735
Sample variance	550	60
Sample size	10	11

- A) -0.31                      B) -7.07                      C) -0.11                      D) -0.91

- 12) Twelve dieters lost an average of 5.2 pounds in 6 weeks when given a special diet plus a "fat-blocking" herbal formula. A control group of twelve other dieters were given the same diet, but without the herbal formula, and lost an average of 4.5 pounds during the same time. The standard deviation of the "fat-blocker" sample was 2.8 and the standard deviation of the control group was 2.5. Find the 95% confidence interval for the differences of the means. 12) \_\_\_\_\_

- A)  $-1.2 < \mu_1 - \mu_2 < 2.6$                       B)  $-0.4 < \mu_1 - \mu_2 < 1.8$   
 C)  $-1.7 < \mu_1 - \mu_2 < 3.1$                       D)  $-1.8 < \mu_1 - \mu_2 < 0.4$

- 13) Mauricio Cruz, a wine merchant for Cruz's Spirits Emporium, wants to determine if the average price of imported wine is less than the average price of domestic wine. He obtained the data shown in the table below. 13) \_\_\_\_\_

Imported Wine	Domestic Wine
$\bar{X}_1 = \$7.03$	$\bar{X}_2 = \$9.78$
$s_1 = \$2.31$	$s_2 = \$3.62$
$n = 15$	$n = 16$

What is the critical value at  $\alpha = 0.05$ ?

- A) -1.753                      B) -1.761                      C) -2.131                      D) -2.145
- 14) A marketing firm asked a random set of married women and married men how much they were willing to spend for jewelry as a present for their spouse. Can the firm conclude, at  $\alpha = 0.05$ , that the two groups have a different willingness to spend? 14) \_\_\_\_\_

	Women	Men
Sample size	9	16
Sample mean	\$160	\$205
Sample standard deviation	\$34	\$38

- A) Yes, because the test value -3.04 is outside the noncritical region  $-2.306 < t < 2.306$
- B) Yes, because the test value -1.12 is inside the noncritical region  $-2.262 < t < 2.262$
- C) No, because the test value -1.12 is outside the noncritical region  $-2.306 < t < 2.306$
- D) No, because the test value -0.21 is inside the noncritical region  $-2.262 < t < 2.262$
- 15) A reporter bought hamburgers at randomly selected stores of two different restaurant chains, and had the number of Calories in each hamburger measured. Can the reporter conclude, at  $\alpha = 0.05$ , that the hamburgers from the two chains have a different number of Calories? 15) \_\_\_\_\_

	Chain A	Chain B
Sample size	7	8
Sample mean	280 Cal	315 Cal
Sample standard deviation	23 Cal	27 Cal

- A) Yes, because the test value -2.71 is outside the noncritical region  $-2.447 < t < 2.447$
- B) No, because the test value -0.21 is inside the noncritical region  $-2.262 < t < 2.262$
- C) No, because the test value -1.17 is inside the noncritical region  $-2.262 < t < 2.262$
- D) Yes, because the test value -0.21 is inside the noncritical region  $-2.447 < t < 2.447$

Answer Key

Testname: HW10

- 1) C
- 2) B
- 3) B
- 4) B
- 5) B
- 6) C
- 7) B
- 8) A
- 9) D
- 10) B
- 11) B
- 12) C
- 13) B
- 14) A
- 15) A