

Chapter 18 Homework

Name: _____

1. Given the following information, compute the correlation between the two samples and then calculate the estimated standard error of the mean difference between correlated samples, for $n = 15$, $\hat{s}_1^2 = 5.575$, $\hat{s}_2^2 = 4.235$, $cov_{XY} = 3.875$

2. Given the following information, compute Pearson correlation between the two samples and then calculate the estimated standard error of the mean difference between correlated samples, for $n = 50$, $\hat{s}_1^2 = 12.125$, $\hat{s}_2^2 = 25.000$, $cov_{XY} = 6.690$

A professor teaches a research methods lecture, which requires knowledge of statistics. The professor wants to examine whether his Statistics Refresher Lecture facilitates students' understanding of the statistical concepts used throughout the course. To address this question, the professor gives a statistics knowledge test on the first day of class (pretest) and gives a similar test in the class following his Statistics Refresher Lecture (posttest). Performance on each of the two tests is compared to examine whether students did better on the second test.

1. In this scenario, is the professor testing a *directional* or *non-directional* hypothesis? How do you know?

2. Expressed in terms of μ , what are the *null* and *alternate* hypotheses for this example?

H_0 :

H_A :

Below are the data for both conditions; use this to answer the questions below and on the next page.

Pretest (X_1)	n = 10	Posttest (X_2)
$\bar{X}_1 = 13$		$\bar{X}_2 = 14$
$SS_1 = 120$		$SS_2 = 268$
$SCP = 80$		

3. How many degrees of freedom are there? What is the critical t-Value (t_α) for rejecting H_0 with $\alpha = .05$?

