Statistics – Unit 5 HW 1

Name: _____
Date: _____

1. Explain the difference between testing a single mean and testing the difference between two means.

For the following exercises, perform each of the following steps:

a) State hypotheses and identify claim.
b) Find the critical value(s).
c) Compute the test value.
d) Make the decision.
e) Summarize the results.

2. The average wind speed in Casper, Wyoming, has been found to be 12.7 miles per hour, and in Phoenix, Arizona, it is 6.2 miles per hour. To test the relationship between the averages, the average wind speed was calculated for a sample of 31 days for each city. The results are reported below. Is there sufficient evidence at alpha=0.05 to conclude that the average wind speed is greater in Casper than in Phoenix.

	Casper	**Phoenix**
Sample Size	31	31
Sample Mean	12.85 mph	7.9 mph
Population Standard Deviation	3.3 mph	2.8 mph

3. The Bureau of the Census reports that the average commuting time for citizens of both Baltimore, Maryland, and Miami, Florida, is approximately 29 minutes. To see if their commuting times appear to be any different in the winter, random samples of 40 drivers were surveyed in each city and the average commuting time for the month of January was calculated for both cities. The results are provided below. At the 0.05 level of significance, can it be concluded that the commuting times are different in the winter?

	Miami	**Baltimore**
Sample Size	40	40
Sample Mean	28.5 min	35.2 min
Population Standard Deviation	7.2 min	9.1 min

4. At age 9 the average weight (21.3 kg) and the average height (124.5 cm) for both boys and girls are exactly the same. A random sample of 9-year-olds yielded these results. Estimate the mean difference in height between boys and girls with 95% confidence. Does your interval support the given claim?

	Boys	**Girls**
Sample Size	60	50
Mean Height, cm	123.5	126.2
Population Variance	98	120

The average length of "short hospital stays" for men is slightly longer than that for women. 5.2 days versus 4.5 days. A random sample of recent hospital stays for both men and women revealed the following. At alpha= 0.01, is there sufficient evidence to conclude that the average hospital stay for men is longer than the average hospital stay for women?

	Men	**Women**
Sample Size	32	30
Sample Mean	5.5 days	4.2 days
Population Standard Deviation	1.2 days	1.5 days