

Name _____

AP Stats

Two Sample CI

- i) A 30-month study is conducted to determine the difference in the numbers of accidents per month occurring in two departments in an assembly plant. Suppose the first department averages 12.3 accidents per month with a standard deviation of 3.5, while the second averages 7.6 accidents with a standard deviation of 3.4. Determine a 95% confidence interval estimate for the difference in the numbers of accidents per month. (Assume that the two populations are independent and approximately normally distributed.)

- 2) A survey is run to determine the difference in the cost of groceries in suburban stores versus inner city stores. A preselected group of items is purchased in a sample of 45 suburban and 35 inner city stores, and the following data are obtained.

Suburban stores	Inner city stores
$n_1 = 45$	$n_2 = 35$
$\bar{x}_1 = \$36.52$	$\bar{x}_2 = \$39.40$
$s_1 = \$1.10$	$s_2 = \$1.23$

Find a 90% confidence interval estimate for the difference in the cost of groceries. (Assume that the two populations are independent and approximately normally distributed.)

- 3) A hardware store owner wishes to determine the difference between the drying times of two brands of paint. Suppose the standard deviation between cans in each population is 2.5 minutes. How large a sample (same number) of each must the store owner use if he wishes to be 98% sure of knowing the difference to within 1 minute?