

Elementary Statistics

Name: _____

Extra Credit 4

Due Dates: _____

Your solutions must be consistent with class notes & resources.

Be Neat, Organized, and No Work $\Leftrightarrow$ No Points

Submit as one file, portrait style, pages in order, and same format.

1. A mathematics assessment test was given to students in two local high schools. The table below shows the results from independent samples taken from these two high schools.

High School A	High School B
67 86 70 75 72 78 63 69 75 98 75 80 72 77 84 71	82 75 78 73 88 91 100 75 73 70 74 90 85 73 68 89 75 72

Table 1:
Mathematics Assessment Results

- (a) (6 points) Correctly choose which high school becomes sample 1 such that $S_1 > S_2$, then complete the following table.
Round your answers to one-decimal place.

Sample 1(High School ____)	Sample 2(High School ____)
$n_1 =$	$n_2 =$
$\bar{x}_1 =$	$\bar{x}_2 =$
$s_1 =$	$s_2 =$

Table 2:
Summarized Math Results

Test whether two population standard deviations between the two high schools are equal or not at $\alpha = 0.02$ by using the data in table 2.

- (b) (3 points) Clearly state H_0 , H_1 , identify the type of test.

H_0 : _____

H_1 : _____

- (c) (2 points) Find the computed test statistic and the P-value. Name the TI command used.

C.T.S. : _____

P-Value : _____

- (d) (3 points) Based on your conclusion, when working with two population means, would you consider YES or NO option for pooling? Explain your reasoning.

(d) _____

- (e) (3 points) Construct a 95% confidence interval for the difference between two population means $\mu_1 - \mu_2$ of mathematics assessment results for all students using data in table 2.

Round your answers to one-decimal place. Name the TI command used.

(e) _____

- (f) (2 points) Compute the margin of error.

(f) _____

Use $\alpha = 0.02$ by referring to the data in table 2 to test a claim that the mean mathematics assessment results of all students in high school A is less than the mean mathematics assessment results of all students in high school B.

- (g) (3 points) Clearly state H_0 , H_1 , identify the claim and type of test.

H_0 : _____

H_1 : _____

- (h) (3 points) Find all related critical values, draw the distribution, clearly mark and shade the critical region(s).

- (i) (2 points) Find the computed test statistic and the P-value.

C.T.S. : _____

P-Value : _____

- (j) (2 points) Use non-statistical terminology to state your final conclusion about the claim.

(j) _____

2. The table below shows the percentage of respondents taken from independent samples of two different hospitals in southern California, which reported their nurses always communicated well.

Hospital A							Hospital B						
50	66	70	70	72	73	63	72	75	78	73	68	71	75
69	65	68	65	90			80	77	75	73	70	74	85

Table 3:
Communication Skills By Nurses

- (a) (3 points) Correctly choose which hospital becomes sample 1 such that $S_1 > S_2$, then complete the following table.
Round your answers to whole numbers.

Sample 1(Hospital ____)	Sample 2(Hospital ____)
$n_1 =$	$n_2 =$
$\bar{x}_1 =$	$\bar{x}_2 =$
$s_1 =$	$s_2 =$

Table 4:
Summarized Hospital Percentages

Test whether two population standard deviations between the two hospitals are equal or not at $\alpha = 0.02$ by using the data in table 4.

- (b) (2 points) Clearly state H_0 , H_1 , identify the type of test.

H_0 : _____

H_1 : _____

- (c) (3 points) Find the computed test statistic and the P-value. Name the TI command used.

C.T.S. : _____

P-Value : _____

- (d) (3 points) Based on your conclusion, when working with two population means, would you consider YES or NO option for pooling?

(d) _____

- (e) (3 points) Construct a 95% confidence interval for the difference between two population means $\mu_1 - \mu_2$ of communication skills of all nurses using data in table 4.

(e) _____

Use $\alpha = 0.02$ by using the data in table 4 to test a claim that the mean percentage of communication skills of all nurses in hospital A is less than the mean percentage of communication skills of all nurses in hospital B.

- (f) (2 points) Clearly state H_0 , H_1 , identify the claim and type of test.

H_0 : _____

H_1 : _____

- (g) (3 points) Find the computed test statistic and the P-value.

C.T.S. : _____

P-Value : _____

- (h) (2 points) Use the p – value method and non-statistical terminology to state your final conclusion about the claim.

(h) _____