

Math 373 Hw 14 Recommended problems, don't turn this in.

Hw 292: 8.22, 8.24. 298: 8.36, 8.40. Rec 292: 8.21, 8.23. 298: 8.35, 8.41.

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8.21 Find the 90% confidence interval for the population mean μ .

(a) $n = 125, \bar{x} = .84, s^2 = .086$

(b) $n = 50, \bar{x} = 21.9, s^2 = 3.44$

8.23 A random sample of $n = 300$ observations from a binomial population produced $x = 263$ successes. Find a 90% confidence interval for the proportion of success p .

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8.35 Independent random samples were selected from populations 1 and 2. The sample sizes, means, and variances are as follows:

	pop. 1	pop. 2
sample size	35	49
sample mean	12.7	7.4
sample variance	1.38	4.14

(a) Find the 95% confidence interval for estimating the difference in the population means ($\mu_1 - \mu_2$)

(b) Can you conclude there is a significant difference in the means of the two populations?
Why?

8.41 To compare the starting salaries of graduates from education and social science, random samples of 50 recent graduates in each major are selected.

	mean	std. dev.
education	25,554	2,225
social science	23,348	2,375

(a) Estimate the difference in the average salaries of education and social science majors.

(a') Find the margin of error for this estimate.

(b) Is there a significant difference between the starting salaries of education majors and social science majors?

Answers

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8.21 Find the 90% confidence interval for the population mean μ .

(a) $n = 125, \bar{x} = .84, s^2 = .086$
 $.84 \pm (1.645)(.0262) = [.80, .88]$

(b) $n = 50, \bar{x} = 21.9, s^2 = 3.44$
 $21.9 \pm (1.645)(.2623) = [21.47, 22.33]$

8.23 A random sample of $n = 300$ observations from a binomial population produced $x = 263$ successes. Find a 90% confidence interval for p .

$.8767 \pm (1.645)(.01898) = [.85, .91]$

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8.35

(a) Find the 95% confidence interval for estimating the difference in the population means ($\mu_1 - \mu_2$)

$5.3 \pm (1.96)(.3520) = [4.61, 5.99]$

(b) Can you conclude there is a significant difference in the means of the two populations? yes

Why? $0 \notin [4.61, 5.99] = \text{confidence interval.}$

8.41

(a) Estimate the difference in the average salaries of education and social science majors.

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(a') Find the margin of error for this estimate.

902

(b) Is there a significant difference between the starting salaries of education majors and social science majors?

yes

Why? $0 \notin [1304.3128, 3107.6872] = \text{confid. interval}$