

ECO240 Homework Questions for Chapter 8, section 1. (For Midterm I)

8.1. A dependent random sample from two normally distributed populations gives the following results:
 $n = 15, \bar{d} = 25.4, S_d = 2.8$.

- Find the 95% confidence interval for the difference between the means of the two populations.
- Find the margin of error for a 95% confidence interval for the difference between the means of the two populations.

8.2. A confidence interval for the difference between the means of two normally distributed populations based on the following dependent samples is desired:

Before	After
6	8
12	14
8	9
10	13
6	7

- Find the margin of error for a 90% confidence level.
- Find the UCL (upper confidence limit) and the LCL (lower confidence limit) for a 90% confidence level.
- Find the width of a 95% confidence interval.

8.3.(Modified) An educational study was designed to investigate the effectiveness of a reading program of elementary age children. Each child was given a pre-test and post-test. Higher post-test scores would indicate reading improvement. From a very large population, a random sample of scores for the pre-test and post-test are as follows. Find a 95% confidence interval estimate of the mean improvement in the reading scores.

Child	Pre-test score	Post-test score
1	40	48
2	36	42
3	38	36
4	33	38
5	35	45