Quiz #11

Question 3

If the 90% confidence limits for the population mean are 36 and 44, which of the following could be the 97% confidence limits ← wider

a) [39, 41] X

b) [36, 41] X

c) [35, 45] ←

d) [38, 45] X

e) [39, 43] X

90% CI: [36, 44]

$\bar{X} = \frac{36+44}{2} = 40$

$40 \pm 4 = [36, 44]$

Question 7

Location is known to affect the number, of a particular item, sold by Walmart. Two different locations, A and B, are selected on an experimental basis. Location A was observed for 18 days and location B was observed for 18 days. The number of the particular items sold per day was recorded for each location. On average, location A sold 39 of these items with a sample standard deviation of 9 and location B sold 55 of these items with a sample standard deviation of 6. Select a 99% confidence interval for the difference in the true means of items sold at location A and B.

a) [48.42, 61.58]

b) [32.42, 45.58]

c) [-22.95, -9.05] ← closest

d) [87.42, 100.6]

e) [-18.55, -13.45]

A: $n_A = 18$ $\bar{x}_A = 39$ $s_B = 9$

B: $n_B = 18$ $\bar{x}_B = 55$ $s_B = 6$

99% CI t^* w/ df = 17

$$(\bar{x}_A - \bar{x}_B) \pm 2.898 \sqrt{\frac{9^2}{18} + \frac{6^2}{18}}$$

-16 ± 7.3845

$-23.388, -8.612$

Question 8

An auditor for a hardware store chain wished to compare the efficiency of two different auditing techniques. To do this he selected a sample of nine store accounts and applied auditing techniques A and B to each of the nine accounts selected. The number of errors found in each of techniques A and B is listed in the table below:

	Errors in A	Errors in B	difference
Store 1 →	27	13	14
Store 2 →	30	19	11
	28	21	7
	30	19	11
	34	36	-2
	32	27	5
	31	31	0
	22	23	-1
	27	32	-5

t^* df = 8
2.306

Select a 95% confidence interval for the true mean difference in the two techniques.

$\bar{x} = 4.44$

$s = 6.747$

$4.44 \pm 2.306 \frac{6.747}{\sqrt{9}}$

4.44 ± 5.186

a) [2.134, 6.754]

b) [-5.195, 5.195]

c) [2.195, 6.693]

d) [-0.751, 9.639]

e) [2.712, 6.176]

Question 9

An automobile manufacturer claims his best product has an average lifespan of exactly 20 years. A skeptical product evaluator asks for evidence (data) that might be used to evaluate this claim. The product evaluator was provided data collected from a random sample of 45

$n = 45$

$\bar{x} = 21$ $\quad$ $S = 8$

people who used the product. Using the data, an average product lifespan of 21 years and a standard deviation of 8 years was calculated. Select the 99%, confidence interval for the true mean lifespan of this product.

$t^* = 2.692$

a) [17.422, 24.578]

b) [16.923, 23.077]

c) [-3.0769, 3.0769]

d) [20.541, 21.459]

e) [17.923, 24.077]

$21 \pm 2.692 \frac{8}{\sqrt{45}}$

21 ± 3.21

$17.789, 24.21$

Question 5

n $\bar{x}$ s $t^* = 1.71$

An SRS of 25 students at UH gave an average height of 5.6 feet and a standard deviation of .3 feet. Construct a 90% confidence interval for the mean height of students at UH.

a) [4.350, 7.050]

b) [5.497, 5.703]

c) [5.579, 5.621]

d) [5.087, 6.113]

e) [4.100, 7.400]

$$5.6 \pm 1.71 \frac{.3}{\sqrt{25}}$$

$$5.6 \pm .1026$$

$$[5.4974, 5.7026]$$