

PRINTABLE VERSION

Quiz 9

You scored 100 out of 100

Question 1

Your answer is CORRECT.

As the length of the confidence interval for the population mean increases, the degree of confidence in the interval's actually containing the population mean

- a) ☐ decreases
- b) ☐ does not change
- c) ☒ increases

Question 2

Your answer is CORRECT.

The gas mileage for a certain model of car is known to have a standard deviation of 4 mi/gallon. A simple random sample of 49 cars of this model is chosen and found to have a mean gas mileage of 27.5 mi/gallon. Construct a 97% confidence interval for the mean gas mileage for this car model.

- a) ☐ (18.820, 36.180)
- b) ☒ (26.260, 28.740)
- c) ☐ (19.976, 35.024)
- d) ☐ (27.323, 27.677)
- e) ☐ (26.425, 28.575)
- f) ☐ None of the above

Question 3

Your answer is CORRECT.

What will increase the width of a confidence interval?

- a) ☐ Increase number in sample
- b) ☐ Decrease confidence level.

- c) ☐ Decrease variance
- d) ☒ Increase variance.

Question 4

Your answer is CORRECT.

If the 90% confidence limits for the population mean are 34 and 46, which of the following *could be* the 97% confidence limits

- a) ☒ (32, 48)
- b) ☐ (36, 41)
- c) ☐ (38, 45)
- d) ☐ (39, 41)
- e) ☐ (39, 43)
- f) ☐ None of the above

Question 5

Your answer is CORRECT.

A 95% confidence interval for the mean of a population is to be constructed and must be accurate to within 0.3 unit. A preliminary sample standard deviation is 2.9. The smallest sample size n that provides the desired accuracy is

- a) ☐ 355
- b) ☐ 352
- c) ☒ 359
- d) ☐ 349
- e) ☐ 366
- f) ☐ None of the above

Question 6

Your answer is CORRECT.

An SRS of 24 students at UH gave an average height of 5.9 feet and a standard deviation of .1 feet. Construct a 90% confidence interval for the mean height of students at UH.

- a) ☐ (4.650, 7.350)

- b) ☐ (5.893, 5.907)
- c) ☒ (5.865, 5.935)
- d) ☐ (4.400, 7.700)
- e) ☐ (5.729, 6.071)
- f) ☐ None of the above

Question 7

Your answer is CORRECT.

Which test statistic should be used when computing a confidence interval given only the number in a sample, the sample mean and sample standard deviation?

- a) ☐ z
- b) ☒ t
- c) ☐ p
- d) ☐ q

Question 8

Your answer is CORRECT.

An important problem in industry is shipment damage. A windshield factory ships its product by truck and determines that it cannot meet its profit expectations if, on average, the number of damaged items per truckload is greater than 12. A random sample of 12 departing truckloads is selected at the delivery point and the average number of damaged items per truckload is calculated to be 11.3 with a calculated sample of variance of 0.49. Select a 99% confidence interval for the true mean of damaged items.

- a) ☐ (-0.6285, 0.6285)
- b) ☒ (10.67, 11.93)
- c) ☐ (10.69, 11.91)
- d) ☐ (48.26, -30.02)
- e) ☐ (11.37, 12.63)
- f) ☐ None of the above

Question 9

Your answer is CORRECT.

The amounts (in ounces) of juice in eight randomly selected juice bottles are:
15.8, 15.6, 15.1, 15.2, 15.1, 15.5, 15.9, 15.5

Construct a 95% confidence interval for the mean amount of juice in all such bottles. Assume an approximate Normal distribution.

- a) ☐ (15.250, 15.675)
- b) ☒ (15.206, 15.719)
- c) ☐ (15.257, 15.668)
- d) ☐ (15.284, 15.641)
- e) ☐ None of the above

Question 10

Your answer is CORRECT.

Among 20 golden hamster litters recorded, there was a sample mean of $\bar{x} = 7.72$ baby hamsters, with a sample standard deviation of $s = 2.5$ hamsters per liter. Create a 97% confidence interval for the mean number of baby hamsters per liter.

- a) ☒ 7.72 ± 1.3113
- b) ☐ 7.72 ± 1.2131
- c) ☐ 7.72 ± 0.5590
- d) ☐ 7.72 ± 2.50
- e) ☐ 7.72 ± 1.1180
- f) ☐ None of the above

Question 11

Your answer is CORRECT.

Which of the following is not appropriate to use the z-confidence interval for μ .

- a) ☐ The sample size is greater than 30.
- b) ☐ The sample is based on a simple random sample (SRS).
- c) ☒ The population standard deviation, σ , is unknown.
- d) ☐ The variable has a Normal distribution.

- e) ☐ All of the above are appropriate.

Question 12

Your answer is CORRECT.

A 90% confidence interval for a population parameter means that if a large number of confidence intervals were constructed from repeated samples, then on average, 90% of these intervals would contain the true parameter.

- a) ☒ True
- b) ☐ False

Question 13

Your answer is CORRECT.

Suppose you were told that a 95% confidence interval for the population mean of mpg of a hybrid car was (21, 35). Determine the point estimate for this population mean.

- a) ☐ 95
- b) ☐ 21
- c) ☒ 28
- d) ☐ 35
- e) ☐ 1.96
- f) ☐ None of the above.

Question 14

Your answer is CORRECT.

Which of the following statements are true?

- a) ☒ The sample mean is an unbiased estimate of the population mean.
- b) ☐ The z-critical value is an estimate of the population mean.
- c) ☐ The t-critical value is an estimate of the population standard deviation.
- d) ☐ The sample standard deviation is an unbiased estimate of the population standard deviation.
- e) ☐ None of the above.