

Reading 11: Sampling and Estimation

Question #1 of 88

Question ID: 434211

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
30	1.310	1.697	2.042	2.457	2.750	3.646
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.296	1.671	2.000	2.390	2.660	3.460
120	1.289	1.658	1.980	2.358	2.617	3.373

Based on Student's *t*-distribution, the 95% confidence interval for the population mean based on a sample of 40 interest rates with a sample mean of 4% and a sample standard deviation of 15% is *closest to*:

- A) -0.794% to 8.794%.
- B) -0.851% to 8.851%.
- C) 1.261% to 6.739%.

Question #2 of 88

Question ID: 413248

An analyst is asked to calculate standard deviation using monthly returns over the last five years. These data are *best* described as:

- A) cross-sectional data.
- B) time series data.
- C) systematic sampling data.

Question #3 of 88

Question ID: 413237

A simple random sample is a sample constructed so that:

- A) the sample size is random.
- B) each element of the population is also an element of the sample.
- C) each element of the population has the same probability of being selected as part of the sample.

Question #4 of 88

Question ID: 413306

The confidence interval for a parameter is calculated as:

- A) Point Estimate \times Reliability Factor \pm Standard Error.
 - B) Point Estimate \pm Standard Error.
 - C) Point Estimate \pm Reliability Factor \times Standard Error.
-

Question #5 of 88

Question ID: 413300

A local high school basketball team had 18 home games this season and averaged 58 points per game. If we assume that the number of points made in home games is normally distributed, which of the following is *most likely* the range of points for a confidence interval of 90%?

- A) 34 to 82.
 - B) 26 to 80.
 - C) 24 to 78.
-

Question #6 of 88

Question ID: 413242

A sample of five numbers drawn from a population is (5, 2, 4, 5, 4). Which of the following statements concerning this sample is *most accurate*?

- A) The variance of the sample is: $\sum(x_i - \text{mean of the sample})^2 / (n - 1) = 1.5$.
 - B) The mean of the sample is $\sum X / (n - 1) = 5$.
 - C) The sampling error of the sample is equal to the standard error of the sample.
-

Question #7 of 88

Question ID: 413281

When is the t-distribution the appropriate distribution to use? The t-distribution is the appropriate distribution to use when constructing confidence intervals based on:

- A) large samples from populations with known variance that are nonnormal.
 - B) small samples from populations with unknown variance that are at least approximately normal.
 - C) small samples from populations with known variance that are at least approximately normal.
-

Question #8 of 88

Question ID: 413268

A traffic engineer is trying to measure the effects of carpool-only lanes on the expressway. Based on a sample of 100 cars at rush hour, he finds that the mean number of occupants per car is 2.5, and the sample standard deviation is 0.4. What is the standard error of the sample mean?

- A) 5.68.
 - B) 0.04.
 - C) 1.00.
-

Question #9 of 88

Question ID: 413266

A population has a mean of 20,000 and a standard deviation of 1,000. Samples of size $n = 2,500$ are taken from this population. What is the standard error of the sample mean?

- A) 20.00.
 - B) 400.00.
 - C) 0.04.
-

Question #10 of 88

Question ID: 765465

The average return on small stocks over the period 1926-1997 was 17.7%, and the standard deviation of the sample was 33.9%. Assuming returns are normally distributed, the 95% confidence interval for the return on small stocks next year is:

- A) -48.7% to 84.1%.
 - B) -16.2% to 51.6%.
 - C) 16.8% to 18.6%.
-

Question #11 of 88

Question ID: 413258

Frank Grinder is trying to introduce sampling into the quality control program of an old-line manufacturer. Currently, each item is individually inspected to make sure it meets size tolerances. For all items manufactured during August, the standard deviation of size was 0.02 centimeters. If Grinder takes a sample of 30 items and finds a standard deviation of size of 0.019 centimeters, what is the standard error of the sample mean?

- A) 0.00200.
 - B) 0.00365.
 - C) 0.00600.
-

Question #12 of 88

Question ID: 413307

Which of the following would result in a wider confidence interval? A:

- A) higher alpha level.
- B) greater level of significance.
- C) higher degree of confidence.

Question #13 of 88

Question ID: 413264

A sample of size $n = 25$ is selected from a normal population. This sample has a mean of 15 and a sample variance of 4. What is the standard error of the sample mean?

- A) 2.0.
- B) 0.4.
- C) 0.8.

Question #14 of 88

Question ID: 434216

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
24	1.318	1.711	2.064	2.492	2.797	3.745
25	1.316	1.708	2.060	2.485	2.787	3.725
26	1.315	1.706	2.056	2.479	2.779	3.707
27	1.314	1.703	2.052	2.473	2.771	3.690

A random sample of 25 Indiana farms had a mean number of cattle per farm of 27 with a sample standard deviation of five. Assuming the population is normally distributed, what would be the 95% confidence interval for the number of cattle per farm?

- A) 22 to 32.
- B) 23 to 31.
- C) 25 to 29.

Question #15 of 88

Question ID: 413271

The sample mean is a consistent estimator of the population mean because the:

- A) expected value of the sample mean is equal to the population mean.
- B) sampling distribution of the sample mean has the smallest variance of any other unbiased estimators of the population mean.
- C) sample mean provides a more accurate estimate of the population mean as the sample size increases.

Question #16 of 88

Question ID: 413295

A traffic engineer is trying to measure the effects of carpool-only lanes on the expressway. Based on a sample of 1,000 cars at rush hour, he finds that the mean number of occupants per car is 2.5, with a standard deviation of 0.4. Assuming that the population is normally distributed, what is the confidence interval at the 5% significance level for the number of occupants per car?

- A) 2.288 to 2.712.
 - B) 2.455 to 2.555.
 - C) 2.475 to 2.525.
-

Question #17 of 88

Question ID: 413292

A sample size of 25 is selected from a normal population. This sample has a mean of 15 and the population variance is 4.

Using this information, construct a 95% confidence interval for the population mean, μ .

- A) $15 \pm 1.96(0.4)$.
 - B) $15 \pm 1.96(0.8)$.
 - C) $15 \pm 1.96(2)$.
-

Question #18 of 88

Question ID: 452012

The central limit theorem concerns the sampling distribution of the:

- A) population mean.
 - B) sample standard deviation.
 - C) sample mean.
-

Question #19 of 88

Question ID: 413272

The sample mean is an unbiased estimator of the population mean because the:

- A) sample mean provides a more accurate estimate of the population mean as the sample size increases.
 - B) expected value of the sample mean is equal to the population mean.
 - C) sampling distribution of the sample mean has the smallest variance of any other unbiased estimators of the population mean.
-

Question #20 of 88

Question ID: 413289

Construct a 90% confidence interval for the mean starting salaries of the CFA charterholders if a sample of 100 recent CFA charterholders gives a mean of 50. Assume that the population variance is 900. All measurements are in \$1,000.

- A) $50 \pm 1.645(900)$.
 - B) $50 \pm 1.645(30)$.
 - C) $50 \pm 1.645(3)$.
-

Question #21 of 88

Question ID: 413246

An analyst divides the population of U.S. stocks into 10 equally sized sub-samples based on market value of equity. Then he takes a random sample of 50 from each of the 10 sub-samples and pools the data to create a sample of 500. This is an example of:

- A) systematic cross-sectional sampling.
 - B) stratified random sampling.
 - C) simple random sampling.
-

Question #22 of 88

Question ID: 413269

From a population of 5,000 observations, a sample of $n = 100$ is selected. Calculate the standard error of the sample mean if the population standard deviation is 50.

- A) 4.48.
 - B) 5.00.
 - C) 50.00.
-

Question #23 of 88

Question ID: 413319

Studies of performance of a sample of mutual fund managers *most likely* suffer from:

- A) survivorship bias.
 - B) sample-selection bias.
 - C) look-ahead bias.
-

Question #24 of 88

Question ID: 413374

For a t -distributed test statistic with 30 degrees of freedom, a one-tailed test specifying the parameter greater than some value and a 95% confidence level, the critical value is:

- A) 1.697.
 - B) 2.042.
 - C) 1.640.
-

Question #25 of 88

Question ID: 413305

In which one of the following cases is the t-statistic the appropriate one to use in the construction of a confidence interval for the population mean?

- A) The distribution is normal, the population variance is known, and the sample size is less than 30.
 - B) The distribution is nonnormal, the population variance is known, and the sample size is at least 30.
 - C) The distribution is nonnormal, the population variance is unknown, and the sample size is at least 30.
-

Question #26 of 88

Question ID: 413298

A sample of 100 individual investors has a mean portfolio value of \$28,000 with a standard deviation of \$4,250. The 95% confidence interval for the population mean is *closest* to:

- A) \$27,575 to \$28,425.
 - B) \$19,500 to \$28,333.
 - C) \$27,159 to \$28,842.
-

Question #27 of 88

Question ID: 413274

Which of the following characterizes the typical construction of a confidence interval *most* accurately?

- A) Standard error +/- (Point estimate / Reliability factor).
 - B) Point estimate +/- (Standard error / Reliability factor).
 - C) Point estimate +/- (Reliability factor x Standard error).
-

Question #28 of 88

Question ID: 413257

If the true mean of a population is 16.62, according to the central limit theorem, the mean of the distribution of sample means, for all possible sample sizes n will be:

- A) 16.62.
- B) indeterminate for sample with $n < 30$.

C) $16.62 / \sqrt{n}$.

Question #29 of 88

Question ID: 434215

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
18	1.330	1.734	2.101	2.552	2.878	3.922
19	1.328	1.729	2.093	2.539	2.861	3.883
20	1.325	1.725	2.086	2.528	2.845	3.850

A traffic engineer is trying to measure the effects of carpool-only lanes on the expressway. Based on a sample of 20 cars at rush hour, he finds that the mean number of occupants per car is 2.5, with a standard deviation of 0.4. If the population is normally distributed, what is the confidence interval at the 5% significance level for the number of occupants per car?

- A) 2.313 to 2.687.
- B) 2.410 to 2.589.
- C) 2.387 to 2.613.

Question #30 of 88

Question ID: 413317

The practice of repeatedly using the same database to search for patterns until one is found is called:

- A) data mining.
- B) sample selection bias.
- C) data snooping.

Question #31 of 88

Question ID: 413322

When sampling from a population, the *most* appropriate sample size:

- A) involves a trade-off between the cost of increasing the sample size and the value of increasing the precision of the estimates.
- B) is at least 30.
- C) minimizes the sampling error and the standard deviation of the sample statistic around its population value.

Question #32 of 88

Question ID: 413312

An article in a trade journal suggests that a strategy of buying the seven stocks in the S&P 500 with the highest earnings-to-price ratio at the end of the calendar year and holding them until March 20 of the following year produces significant trading profits. Upon reading further, you discover that the study is based on data from 1993 to 1997, and the earnings-to-price ratio is calculated using the stock price on December 31 of each year and the annual reported earnings per share for that year. Which of the following biases is *least likely* to influence the reported results?

- A) Look-ahead bias.
 - B) Survivorship bias.
 - C) Time-period bias.
-

Question #33 of 88

Question ID: 413283

Which statement *best* describes the properties of Student's t-distribution? The t-distribution is:

- A) skewed, and defined by a single parameter.
 - B) symmetrical, and defined by a single parameter.
 - C) symmetrical, and defined by two parameters.
-

Question #34 of 88

Question ID: 413267

If the number of offspring for females of a certain mammalian species has a mean of 16.4 and a standard deviation of 3.2, what will be the standard error of the sample mean for a survey of 25 females of the species?

- A) 0.64.
 - B) 1.28.
 - C) 3.20.
-

Question #35 of 88

Question ID: 413310

An analyst has reviewed market data for returns from 1980-1990 extensively, searching for patterns in the returns. She has found that when the end of the month falls on a Saturday, there are usually positive returns on the following Thursday. She has engaged in:

- A) data snooping.
 - B) biased selection.
 - C) data mining.
-

Question #36 of 88

Question ID: 413278

Which of the following statements about confidence intervals is *least* accurate? A confidence interval:

- A) has a significance level that is equal to one minus the degree of confidence.
- B) expands as the probability that a point estimate falls within the interval decreases.
- C) is constructed by adding and subtracting a given amount from a point estimate.

Question #37 of 88

Question ID: 710145

Which of the following statements regarding confidence intervals is *most* accurate?

- A) The lower the significance level, the wider the confidence interval.
- B) The lower the degree of confidence, the wider the confidence interval.
- C) The higher the significance level, the wider the confidence interval.

Question #38 of 88

Question ID: 434213

A nursery sells trees of different types and heights. Suppose that 75 trees chosen at random are sold for planting at City Hall. These 75 trees average 60 inches in height with a standard deviation of 16 inches.

Using this information, construct a 95% confidence interval for the mean height of all trees in the nursery.

- A) $0.8 \pm 1.96(16)$.
- B) $60 \pm 1.96(16)$.
- C) $60 \pm 1.96(1.85)$.

Question #39 of 88

Question ID: 434214

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
24	1.318	1.711	2.064	2.492	2.797	3.745
25	1.316	1.708	2.060	2.485	2.787	3.725
26	1.315	1.706	2.056	2.479	2.779	3.707
27	1.314	1.703	2.052	2.473	2.771	3.690

Books Fast, Inc., prides itself on shipping customer orders quickly. Books Fast sampled 27 of its customers within a 200-mile radius and found a mean delivery time of 76 hours, with a sample standard deviation of 6 hours. Based on this sample and assuming a normal distribution of delivery times, what is the confidence interval for the mean delivery time at 5% significance?

- A) 65.75 to 86.25 hours.
- B) 68.50 to 83.50 hours.
- C) 73.63 to 78.37 hours.

Question #40 of 88

Question ID: 413313

An analyst has compiled stock returns for the first 10 days of the year for a sample of firms and estimated the correlation between these returns and changes in book value for these firms over the just ended year. What objection could be raised to such a correlation being used as a trading strategy?

- A) Use of year-end values causes a time-period bias.
 - B) The study suffers from look-ahead bias.
 - C) Use of year-end values causes a sample selection bias.
-

Question #41 of 88

Question ID: 413279

With 60 observations, what is the appropriate number of degrees of freedom to use when carrying out a statistical test on the mean of a population?

- A) 61.
 - B) 59.
 - C) 60.
-

Question #42 of 88

Question ID: 413250

Monthly Gross Domestic Product (GDP) figures from 1990-2000 are an example of:

- A) systematic data.
 - B) cross-sectional data.
 - C) time-series data.
-

Question #43 of 88

Question ID: 413251

Which of the following statements regarding the central limit theorem (CLT) is *least* accurate? The CLT:

- A) holds for any population distribution, assuming a large sample size.
 - B) states that for a population with mean μ and variance σ^2 , the sampling distribution of the sample means for any sample of size n will be approximately normally distributed.
 - C) gives the variance of the distribution of sample means as σ^2 / n , where σ^2 is the population variance and n is the sample size.
-

Question #44 of 88

Question ID: 413244

Which of the following is *least likely* a step in stratified random sampling?

- A) The size of each sub-sample is selected to be the same across strata.
 - B) The population is divided into strata based on some classification scheme.
 - C) The sub-samples are pooled to create the complete sample.
-

Question #45 of 88

Question ID: 413253

According to the Central Limit Theorem, the distribution of the sample means is approximately *normal* if:

- A) the sample size $n > 30$.
 - B) the standard deviation of the population is known.
 - C) the underlying population is normal.
-

Question #46 of 88

Question ID: 413311

Sunil Hameed is a reporter with the weekly periodical *The Fun Finance Times*. Today, he is scheduled to interview a researcher who claims to have developed a successful technical trading strategy based on trading on the CEO's birthday (sample was taken from the Fortune 500). After the interview, Hameed summarizes his notes (partial transcript as follows). The researcher:

- was defensive about the lack of economic theory consistent with his results.
- used the same database of data for all his tests and has not tested the trading rule on out-of-sample data.
- excluded stocks for which he could not determine the CEO's birthday.
- used a sample cut-off date of the month before the latest market correction.

Select the choice that *best* completes the following: Hameed concludes that the research is flawed because the data and process are biased by:

- A) data mining, time-period bias, and look-ahead bias.
 - B) sample selection bias and time-period bias.
 - C) data mining, sample selection bias, and time-period bias.
-

Question #47 of 88

Question ID: 413256

Suppose the mean debt/equity ratio of the population of all banks in the United States is 20 and the population variance is 25. A banking industry analyst uses a computer program to select a random sample of 50 banks from this population and compute the sample mean. The program repeats this exercise 1000 times and computes the sample mean each time. According to the central limit theorem, the sampling distribution of the 1000 sample means will be approximately normal if the population of bank debt/equity ratios has:

- A) any probability distribution.
 - B) a normal distribution, because the sample is random.
 - C) a Student's *t*-distribution, because the sample size is greater than 30.
-

Question #48 of 88

Question ID: 413320

Which of the following statements about sample statistics is *least* accurate?

- A) The z-statistic is used for nonnormal distributions with known variance, but only for large samples.
 - B) The z-statistic is used to test normally distributed data with a known variance, whether testing a large or a small sample.
 - C) There is no sample statistic for non-normal distributions with unknown variance for either small or large samples.
-

Question #49 of 88

Question ID: 413260

Joseph Lu calculated the average return on equity for a sample of 64 companies. The sample average is 0.14 and the sample standard deviation is 0.16. The standard error of the mean is *closest* to:

- A) 0.0025.
 - B) 0.1600.
 - C) 0.0200.
-

Question #50 of 88

Question ID: 761037

A sample of 25 junior financial analysts gives a mean salary (in thousands) of 60. Assume the population variance is known to be 100. A 90% confidence interval for the mean starting salary of junior financial analysts is *most* accurately constructed as:

- A) $60 \pm 1.645(2)$.
 - B) $60 \pm 1.645(10)$.
 - C) $60 \pm 1.645(4)$.
-

Question #51 of 88

Question ID: 413241

Which of the following statements about sampling errors is *least* accurate?

- A) Sampling errors are errors due to the wrong sample being selected from the population.
- B) Sampling error is the error made in estimating the population mean based on a sample mean.

- C) Sampling error is the difference between a sample statistic and its corresponding population parameter.
-

Question #52 of 88

Question ID: 413275

A range of estimated values within which the actual value of a population parameter will lie with a given probability of $1 - \alpha$ is a(n):

- A) $(1 - \alpha)$ percent confidence interval.
 - B) α percent confidence interval.
 - C) α percent point estimate.
-

Question #53 of 88

Question ID: 413262

From a population with a known standard deviation of 15, a sample of 25 observations is taken. Calculate the standard error of the sample mean.

- A) 1.67.
 - B) 0.60.
 - C) 3.00.
-

Question #54 of 88

Question ID: 413282

Which one of the following statements about the t-distribution is *most* accurate?

- A) The t-distribution approaches the standard normal distribution as the number of degrees of freedom becomes large.
 - B) The t-distribution is the only appropriate distribution to use when constructing confidence intervals based on large samples.
 - C) Compared to the normal distribution, the t-distribution has less probability in the tails.
-

Question #55 of 88

Question ID: 413318

A scientist working for a pharmaceutical company tries many models using the same data before reporting the one that shows that the given drug has no serious side effects. The scientist is guilty of:

- A) look-ahead bias.
- B) data mining.
- C) sample selection bias.

Question #56 of 88

Question ID: 413249

The sample of per square foot sales for 100 U.S. retailers in December 2004 is an example of:

- A) unbiased data.
 - B) cross-sectional data.
 - C) time-series data.
-

Question #57 of 88

Question ID: 413277

Which of the following statements about sampling and estimation is *most* accurate?

- A) A point estimate is a single estimate of an unknown population parameter calculated as a sample mean.
 - B) A confidence interval estimate consists of a range of values that bracket the parameter with a specified level of probability, $1 - \beta$.
 - C) Time-series data are observations over individual units at a point in time.
-

Question #58 of 88

Question ID: 413270

A statistical estimator is unbiased if:

- A) an increase in sample size decreases the standard error.
 - B) the expected value of the estimator is equal to the population parameter.
 - C) the variance of its sampling distribution is smaller than that of all other estimators.
-

Question #59 of 88

Question ID: 529151

An equity analyst needs to select a representative sample of manufacturing stocks. Starting with the population of all publicly traded manufacturing stocks, she classifies each stock into one of the 20 industry groups that form the Index of Industrial Production for the manufacturing industry. She then selects four stocks from each industry. The sampling method the analyst is using is *best* characterized as:

- A) nonrandom sampling.
 - B) stratified random sampling.
 - C) random sampling.
-

Question #60 of 88

Question ID: 413287

The table below is for five samples drawn from five separate populations. The far left columns give information on the population distribution, population variance, and sample size. The right-hand columns give three choices for the appropriate tests: Z = z-statistic, and t = t-statistic. "None" means that a test statistic is not available.

Sampling From			Test Statistic Choices		
Distribution	Variance	n	One	Two	Three
Normal	5.60	75	Z	Z	Z
Non-normal	n/a	45	Z	t	t
Normal	n/a	1000	Z	t	t
Non-normal	14.3	15	t	none	t
Normal	0.056	10	Z	Z	t

Which set of test statistic choices (One, Two, or Three) matches the correct test statistic to the sample for all five samples?

- A) Two.
- B) Three.
- C) One.

Question #61 of 88

Question ID: 434219

Student's t-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.296	1.671	2.000	2.390	2.660	3.460
120	1.289	1.658	1.980	2.358	2.617	3.373

The average salary for a sample of 61 CFA charterholders with 10 years experience is \$200,000, and the sample standard deviation is \$80,000. Assume the population is normally distributed. Which of the following is a 99% confidence interval for the population mean salary of CFA charterholders with 10 years of experience?

- A) \$172,754 to \$227,246.
- B) \$160,000 to \$240,000.
- C) \$172,514 to \$227,486.

Question #62 of 88

Question ID: 413263

Melissa Cyprus, CFA, is conducting an analysis of inventory management practices in the retail industry. She assumes the population cross-sectional standard deviation of inventory turnover ratios is 20. How large a random sample should she gather in order to ensure a standard error of the sample mean of 4?

- A) 20.
 - B) 80.
 - C) 25.
-

Question #63 of 88

Question ID: 413290

What is the 95% confidence interval for a population mean with a known population variance of 9, based on a sample of 400 observations with mean of 96?

- A) 95.118 to 96.882.
 - B) 95.706 to 96.294.
 - C) 95.613 to 96.387.
-

Question #64 of 88

Question ID: 413280

Which one of the following distributions is described entirely by the degrees of freedom?

- A) Normal distribution.
 - B) Student's t-distribution.
 - C) Lognormal distribution.
-

Question #65 of 88

Question ID: 413276

Which of the following statements about sampling and estimation is *most* accurate?

- A) The standard error of the sample means when the standard deviation of the population is unknown equals s / \sqrt{n} , where s = sample standard deviation.
 - B) The standard error of the sample means when the standard deviation of the population is known equals σ / \sqrt{n} , where σ = sample standard deviation adjusted by $n - 1$.
 - C) The probability that a parameter lies within a range of estimated values is given by α .
-

Question #66 of 88

Question ID: 413236

From the entire population of McDonald's franchises, an analyst constructs a sample of the monthly sales volume for 20 randomly selected franchises. She calculates the mean sales volume for those 20 franchises to be \$400,000. The sampling distribution of the mean is the probability distribution of the:

- A) mean monthly sales volume estimates from all possible samples of 20 observations.
- B) mean monthly sales volume estimates from all possible samples.
- C) monthly sales volume for all McDonald's franchises.

Question #67 of 88

Question ID: 413239

The sampling distribution of a statistic is:

- A) always a standard normal distribution.
- B) the probability distribution consisting of all possible sample statistics computed from samples of the same size drawn from the same population.
- C) the same as the probability distribution of the underlying population.

Question #68 of 88

Question ID: 413315

The average mutual fund return calculated from a sample of funds with significant survivorship bias would *most likely* be:

- A) larger than the mean return of the population of all mutual funds.
- B) an unbiased estimate of the mean return of the population of all mutual funds if the sample size was large enough.
- C) smaller than the mean return of the population of all mutual funds.

Question #69 of 88

Question ID: 413243

Sampling error can be defined as:

- A) rejecting the null hypothesis when it is true.
- B) the standard deviation of a sampling distribution of the sample means.
- C) the difference between a sample statistic and its corresponding population parameter.

Question #70 of 88

Question ID: 710144

Which of the following statements about a confidence interval for a population mean is *most* accurate?

- A) When a z-statistic is acceptable, a 95% confidence interval for a population mean is the sample mean plus-or-minus 1.96 times the sample standard deviation.
 - B) If the population variance is unknown, a large sample size is required in order to estimate a confidence interval for the population mean.
 - C) For a sample size of 30, using a t-statistic will result in a wider confidence interval for a population mean than using a z-statistic.
-

Question #71 of 88

Question ID: 652911

Cumulative Z-Table

z	0.05	0.06	0.07	0.08	0.09
2.4	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9970	0.9971	0.9972	0.9973	0.9974

The average return on the Russell 2000 index for 121 monthly observations was 1.5%. The population standard deviation is assumed to be 8.0%. What is a 99% confidence interval for the mean monthly return on the Russell 2000 index?

- A) -0.4% to 3.4%.
- B) 0.1% to 2.9%.
- C) -6.5% to 9.5%.

Question #72 of 88

Question ID: 413309

Which of the following is the *best* method to avoid data mining bias when testing a profitable trading strategy?

- A) Test the strategy on a different data set than the one used to develop the rules.
- B) Increase the sample size to at least 30 observations per year.
- C) Use a sample free of survivorship bias.

Question #73 of 88

Question ID: 434218

Student's t-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
30	1.310	1.697	2.042	2.457	2.750	3.646
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.296	1.671	2.000	2.390	2.660	3.460
120	1.289	1.658	1.980	2.358	2.617	3.373

From a sample of 41 orders for an on-line bookseller, the average order size is \$75, and the sample standard deviation is \$18. Assume the distribution of orders is normal. For which interval can one be exactly 90% confident that the population mean is contained in that interval?

- A) \$70.27 to \$79.73.
- B) \$74.24 to \$75.76.
- C) \$71.29 to 78.71.

The average U.S. dollar/Euro exchange rate from a sample of 36 monthly observations is \$1.00/Euro. The population variance is 0.49. What is the 95% confidence interval for the mean U.S. dollar/Euro exchange rate?

- A) \$0.8075 to \$1.1925.
- B) \$0.7713 to \$1.2287.
- C) \$0.5100 to \$1.4900.

A study reports that from 2002 to 2004 the average return on growth stocks was twice as large as that of value stocks. These results *most likely* reflect:

- A) survivorship bias.
- B) time-period bias.
- C) look-ahead bias.

Frank Grinder is trying to introduce sampling into the quality control program of an old-line manufacturer. Grinder samples 38 items and finds that the standard deviation in size is 0.019 centimeters. What is the standard error of the sample mean?

- A) 0.00204.
- B) 0.00308.
- C) 0.00615.

The central limit theorem states that, for any distribution, as *n* gets larger, the sampling distribution:

- A) approaches the mean.
- B) approaches a normal distribution.
- C) becomes larger.

Student's *t*-Distribution

Level of Significance for One-Tailed Test						

df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.296	1.671	2.000	2.390	2.660	3.460
120	1.289	1.658	1.980	2.358	2.617	3.373

The approximate 99% confidence interval for the population mean based on a sample of 60 returns with a mean of 7% and a sample standard deviation of 25% is *closest* to:

- A) 0.546% to 13.454%.
- B) 1.584% to 14.584%.
- C) -1.584% to 15.584%.

Question #79 of 88

Question ID: 434217

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.296	1.671	2.000	2.390	2.660	3.460
120	1.289	1.658	1.980	2.358	2.617	3.373

From a sample of 41 monthly observations of the S&P Mid-Cap index, the mean monthly return is 1% and the sample variance is 36. For which of the following intervals can one be *closest* to 95% confident that the population mean is contained in that interval?

- A) $1.0\% \pm 1.6\%$.
- B) $1.0\% \pm 6.0\%$.
- C) $1.0\% \pm 1.9\%$.

Question #80 of 88

Question ID: 413316

A research paper that reports finding a profitable trading strategy without providing any discussion of an economic theory that makes predictions consistent with the empirical results is *most likely* evidence of:

- A) a sample that is not large enough.
- B) a non-normal population distribution.
- C) data mining.

Question #81 of 88

Sampling error is the:

- A) difference between the point estimate of the mean and the mean of the sampling distribution.
 - B) difference between a sample statistic and its corresponding population parameter.
 - C) estimation error created by using a non-random sample.
-

Question #82 of 88

Question ID: 413265

The following data are available on a sample of advertising budgets of 81 U.S. manufacturing companies: The mean budget is \$10 million. The sample variance is 36 million. The standard error of the sample mean is:

- A) \$1,111.
 - B) \$667.
 - C) \$400.
-

Question #83 of 88

Question ID: 413238

An analyst wants to generate a simple random sample of 500 stocks from all 10,000 stocks traded on the New York Stock Exchange, the American Stock Exchange, and NASDAQ. Which of the following methods is *least likely* to generate a random sample?

- A) Listing all the stocks traded on all three exchanges in alphabetical order and selecting every 20th stock.
 - B) Using the 500 stocks in the S&P 500.
 - C) Assigning each stock a unique number and generating a number using a random number generator. Then selecting the stock with that number for the sample and repeating until there are 500 stocks in the sample.
-

Question #84 of 88

Question ID: 413255

Which of the following is NOT a prediction of the central limit theorem?

- A) The mean of the sampling distribution of the sample means will be equal to the population mean.
 - B) The variance of the sampling distribution of sample means will approach the population variance divided by the sample size.
 - C) The standard error of the sample mean will increase as the sample size increases.
-

Question #85 of 88

Question ID: 761036

The range of possible values in which an actual population parameter may be observed at a given level of probability is known as a:

- A) degree of confidence.
 - B) confidence interval.
 - C) significance level.
-

Question #86 of 88

Question ID: 413247

Thomas Merton, a car industry analyst, wants to investigate a relationship between the types of ads used in advertising campaigns and sales to customers in certain age groups. In order to make sure he includes manufacturers of all sizes, Merton divides the industry into four size groups and draws random samples from each group. What sampling method is Merton using?

- A) Cross-sectional sampling.
 - B) Stratified random sampling.
 - C) Simple random sampling.
-

Question #87 of 88

Question ID: 413321

When sampling from a nonnormal distribution with an known variance, which statistic should be used if the sample size is *large* and if the respective sample size is *small*?

- A) z-statistic; not available.
 - B) *t*-statistic; *t*-statistic.
 - C) z-statistic; z-statistic.
-

Question #88 of 88

Question ID: 484167

The sample mean return of Bartlett Co. is 3% and the standard deviation is 6% based on 30 monthly returns. What is the confidence interval of a two tailed z-test of the population mean with a 5% level of significance?

- A) 1.90 to 4.10.
- B) 0.85 to 5.15.
- C) 2.61 to 3.39.