## Question #1 of 86

Question ID: 1456649

An analyst is testing the hypothesis that the mean excess return from a trading strategy is less than or equal to zero. The analyst reports that this hypothesis test produces a *p*-value of 0.034. This result *most likely* suggests that the:

**A)** best estimate of the mean excess return produced by the strategy is 3.4%.

**B)** null hypothesis can be rejected at the 5% significance level.

**C)** smallest significance level at which the null hypothesis can be rejected is 6.8%.

---

## Question #2 of 86

Question ID: 1456618

Which of the following statements about hypothesis testing is *most accurate*?

**A)** A Type I error is rejecting the null hypothesis when it is true, and a Type II error is rejecting the alternative hypothesis when it is true.

**B)** A hypothesis that the population mean is less than or equal to 5 should be rejected when the critical Z-statistic is greater than the sample Z-statistic.

**C)** A hypothesized mean of 3, a sample mean of 6, and a standard error of the sampling means of 2 give a sample Z-statistic of 1.5.

---

## Question #3 of 86

Question ID: 1456607

Which of the following is an accurate formulation of null and alternative hypotheses?

**A)** Less than for the null and greater than for the alternative.

**B)** Equal to for the null and not equal to for the alternative.

**C)** Greater than for the null and less than or equal to for the alternative.

---

## Question #4 of 86

Question ID: 1456642

An analyst calculates that the mean of a sample of 200 observations is 5. The analyst wants to determine whether the calculated mean, which has a standard error of the sample statistic of 1, is significantly different from 7 at the 5% level of significance. Which of the following statements is *least* accurate?:

**A)** The alternative hypothesis would be $H_a$: mean > 7.

**B)** The null hypothesis would be: $H_0$: mean = 7.

**C)** The mean observation is significantly different from 7, because the calculated Z-statistic is less than the critical Z-statistic.

---

## Question #5 of 86

Question ID: 1456669

An analyst wants to determine whether the mean returns on two stocks over the last year were the same or not. What test should she use, assuming returns are normally distributed?

**A)** Chi-square test.

**B)** Difference in means test.

**C)** Paired comparisons test.

---

## Question #6 of 86

Question ID: 1456622

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than $57,000 per year. Assuming a normal distribution, what is the test statistic given a sample of 115 newly acquired CFA charterholders with a mean starting salary of $65,000 and a standard deviation of $4,500?

**A)** 19.06.

**B)** 1.78.

**C)** -19.06.

---

## Question #7 of 86

Question ID: 1456637

If a two-tailed hypothesis test has a 5% probability of rejecting the null hypothesis when the null is true, it is *most likely* that:

**A)** the confidence level of the test is 95%.

**B)** the power of the test is 95%.

**C)** the probability of a Type I error is 2.5%.

---

## Question #8 of 86

Question ID: 1456670

Joe Sutton is evaluating the effects of the 1987 market decline on the volume of trading. Specifically, he wants to test whether the decline affected trading volume. He selected a sample of 500 companies and collected data on the total annual volume for one year prior to the decline and for one year following the decline. What is the set of hypotheses that Sutton is testing?

**A)** $H_0$: $\mu_d = \mu_{d0}$ versus $H_a$: $\mu_d > \mu_{d0}$.

**B)** $H_0$: $\mu_d = \mu_{d0}$ versus $H_a$: $\mu_d \neq \mu_{d0}$.

**C)** $H_0$: $\mu_d \neq \mu_{d0}$ versus $H_a$: $\mu_d = \mu_{d0}$.

---

## Question #9 of 86

Question ID: 1456639

Kyra Mosby, M.D., has a patient who is complaining of severe abdominal pain. Based on an examination and the results from laboratory tests, Mosby states the following diagnosis hypothesis: $H_o$: Appendicitis, $H_A$: Not Appendicitis. Dr. Mosby removes the patient's appendix and the patient still complains of pain. Subsequent tests show that the gall bladder was causing the problem. By taking out the patient's appendix, Dr. Mosby:

**A)** made a Type II error.

**B)** made a Type I error.

**C)** is correct.

---

## Question #10 of 86

Question ID: 1456624

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than $58,500 per year. What is the test statistic given a sample of 175 CFA charterholders with a mean starting salary of $67,000 and a standard deviation of $5,200?

**A)** 1.63.

**B)** –1.63.

**C)** 21.62.

---

## Question #11 of 86

Question ID: 1456677

The use of the F-distributed test statistic, $F = s_1^2 / s_2^2$, to compare the variances of two populations *least likely* requires which of the following?

**A)** samples are independent of one another.

**B)** populations are normally distributed.

**C)** two samples are of the same size.

---

## Question #12 of 86

Question ID: 1456602

Which one of the following *best* characterizes the alternative hypothesis? The alternative hypothesis is usually the:

**A)** hypothesis that is accepted after a statistical test is conducted.

**B)** hypothesis to be proved through statistical testing.

**C)** hoped-for outcome.

---

## Question #13 of 86

Question ID: 1456619

If the probability of a Type I error decreases, then the probability of:

**A)** a Type II error increases.

**B)** incorrectly accepting the null decreases.

**C)** incorrectly rejecting the null increases.

---

## Question #14 of 86

Question ID: 1456636

If a one-tailed *z*-test uses a 5% significance level, the test will reject a:

**A)** false null hypothesis 95% of the time.

**B)** true null hypothesis 95% of the time.

**C)** true null hypothesis 5% of the time.

---

## Question #15 of 86

Question ID: 1456611

George Appleton believes that the average return on equity in the amusement industry, μ, is greater than 10%. What is the null ($H_0$) and alternative ($H_a$) hypothesis for his study?

**A)** $H_0$: ≤ 0.10 versus $H_a$: > 0.10.

**B)** $H_0$: > 0.10 versus $H_a$: < 0.10.

**C)** $H_0$: > 0.10 versus $H_a$: ≤ 0.10.

---

## Question #16 of 86

Question ID: 1456666

For a test of the equality of the means of two normally distributed independent populations, the appropriate test statistic follows a:

**A)** chi-square distribution.

**B)** *F*-distribution.

**C)** *t*-distribution.

---

## Question #17 of 86

Question ID: 1456617

A researcher is testing whether the average age of employees in a large firm is statistically different from 35 years (either above or below). A sample is drawn of 250 employees and the researcher determines that the appropriate critical value for the test statistic is 1.96. The value of the computed test statistic is 4.35. Given this information, which of the following statements is *least* accurate? The test:

**A)** has a significance level of 95%.

**B)** indicates that the researcher will reject the null hypothesis.

**C)** indicates that the researcher is 95% confident that the average employee age is different than 35 years.

---

## Question #18 of 86

Question ID: 1456654

Which of the following statements about testing a hypothesis using a Z-test is *least* accurate?

**A)** The confidence interval for a two-tailed test of a population mean at the 5% level of significance is that the sample mean falls between ±1.96 $\sigma/\sqrt{n}$ of the null hypothesis value.

**B)** If the calculated Z-statistic lies outside the critical Z-statistic range, the null hypothesis can be rejected.

**C)** The calculated Z-statistic determines the appropriate significance level to use.

---

## Question #19 of 86

Question ID: 1456668

For a test of the equality of the mean returns of two non-independent populations based on a sample, the numerator of the appropriate test statistic is the:

**A)** average difference between pairs of returns.

**B)** difference between the sample means for each population.

**C)** larger of the two sample means.

---

## Question #20 of 86

Question ID: 1456646

A researcher determines that the mean annual return over the last 10 years for an investment strategy was greater than that of an index portfolio of equal risk with a statistical significance level of 1%. To determine whether the abnormal portfolio returns to the strategy are economically meaningful, it would be *most appropriate* to additionally account for:

**A)** only the transaction costs and tax effects of the strategy.

**B)** only the transaction costs of the strategy.

**C)** the transaction costs, tax effects, and risk of the strategy.

---

## Question #21 of 86

Question ID: 1456659

**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** |
| **28** | 1.313 | 1.701 | 2.048 | 2.467 | 2.763 | 3.674 |
| **29** | 1.311 | 1.699 | 2.045 | 2.462 | 2.756 | 3.659 |
| **30** | 1.310 | 1.697 | 2.042 | 2.457 | 2.750 | 3.646 |

In order to test whether the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken and the sample value of the computed test statistic, $t_{n-1}$ = 3.4. If you choose a 5% significance level you should:

**A)** reject the null hypothesis and conclude that the population mean is greater than 100.

**B)** fail to reject the null hypothesis and conclude that the population mean is greater than 100.

**C)** fail to reject the null hypothesis and conclude that the population mean is less than or equal to 100.

---

## Question #22 of 86

Question ID: 1456604

Which of the following statements *least accurately* describes the procedure for testing a hypothesis?

**A)** Develop a hypothesis, compute the test statistic, and make a decision.

**B)** Select the level of significance, formulate the decision rule, and make a decision.

**C)** Compute the sample value of the test statistic, set up a rejection (critical) region, and make a decision.

---

## Question #23 of 86

Question ID: 1456667

Brandon Ratliff is investigating whether the mean of abnormal returns earned by portfolio managers with an MBA degree significantly differs from mean abnormal returns earned by managers without an MBA. Ratliff's null hypothesis is that the means are equal. If Ratliff's critical t-value is 1.98 and his computed t-statistic is 2.05, he should:

**A)** reject the null hypothesis and conclude that the population means are equal.

**B)** reject the null hypothesis and conclude that the population means are not equal.

**C)** fail to reject the null hypothesis and conclude that the population means are equal.

---

## Question #24 of 86

Question ID: 1456656

**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 |

Ken Wallace is interested in testing whether the average price to earnings (P/E) of firms in the retail industry is 25. Using a *t*-distributed test statistic and a 5% level of significance, the critical values for a sample of 41 firms is (are):

**A)** -1.685 and 1.685.

**B)** -1.96 and 1.96.

**C)** -2.021 and 2.021.

---

## Question #25 of 86

Question ID: 1456629

A Type II error:

**A)** fails to reject a false null hypothesis.

**B)** fails to reject a true null hypothesis.

**C)** rejects a true null hypothesis.

---

## Question #26 of 86

Question ID: 1456655

Segment of the table of critical values for Student's t-distribution:

| **Level of Significance for a One-Tailed Test** | | |
|---|---|---|
| **df** | **0.050** | **0.025** |
| **Level of Significance for a Two-Tailed Test** | | |
| **df** | **0.10** | **0.05** |
| 18 | 1.734 | 2.101 |
| 19 | 1.729 | 2.093 |

Simone Mak is a television network advertising executive. One of her responsibilities is selling commercial spots for a successful weekly sitcom. If the average share of viewers for this season exceeds 8.5%, she can raise the advertising rates by 50% for the next season. The population of viewer shares is normally distributed. A sample of the past 19 episodes results in a mean share of 9.6% with a standard deviation of 10.0%. If Mak is willing to make a Type 1 error with a 5% probability, which of the following statements is *most* accurate?

**A)** Mak cannot charge a higher rate next season for advertising spots based on this sample.

**B)** The null hypothesis Mak needs to test is that the mean share of viewers is greater than 8.5%.

**C)** With an unknown population variance and a small sample size, Mak cannot test a hypothesis based on her sample data.

---

## Question #27 of 86

Question ID: 1456615

In order to test whether the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken and the sample value of the computed test statistic, $t_{n-1}$ = 3.4. The null and alternative hypotheses are:

**A)** $H_0$: $\mu \leq 100$; $H_a$: $\mu > 100$.

**B)** $H_0$: $X \leq 100$; $H_a$: $X > 100$.

**C)** $H_0$: $\mu = 100$; $H_a$: $\mu \neq 100$.

---

## Question #28 of 86

Question ID: 1456634

Ron Jacobi, manager with the Toulee Department of Natural Resources, is responsible for setting catch-and-release limits for Lake Norby, a large and popular fishing lake. He takes a sample to determine whether the mean length of Northern Pike in the lake exceeds 18 inches. If the sample t-statistic indicates that the mean length of the fish is significantly greater than 18 inches, when the population mean is actually 17.8 inches, the t-test resulted in:

**A)** both a Type I and a Type II error.

**B)** a Type I error only.

**C)** a Type II error only.

---

## Question #29 of 86

Question ID: 1456625

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than $59,000 per year. What is the test statistic given a sample of 135 newly acquired CFA charterholders with a mean starting salary of $64,000 and a standard deviation of $5,500?

**A)** -10.56.

**B)** 0.91.

**C)** 10.56.

---

## Question #30 of 86

Question ID: 1456676

The variance of 100 daily stock returns for Stock A is 0.0078. The variance of 90 daily stock returns for Stock B is 0.0083. Using a 5% level of significance, the critical value for this test is 1.61. The *most appropriate* conclusion regarding whether the variance of Stock A is different from the variance of Stock B is that the:

**A)** variance of Stock B is significantly greater than the variance of Stock A.

**B)** variances are equal.

**C)** variances are not equal.

---

## Question #31 of 86

Question ID: 1456650

Given the following hypothesis:

- The null hypothesis is $H_0 : \mu = 5$
- The alternative is $H_1 : \mu \neq 5$
- The mean of a sample of 17 is 7
- The population standard deviation is 2.0

What is the calculated z-statistic?

**A)** 8.00.

**B)** 4.00.

**C)** 4.12.

---

## Question #32 of 86

Question ID: 1456628

Which of the following statements regarding hypothesis testing is *least* accurate?

**A)** A type I error is acceptance of a hypothesis that is actually false.

**B)** The significance level is the risk of making a type I error.

**C)** A type II error is the acceptance of a hypothesis that is actually false.

---

## Question #33 of 86

Question ID: 1456673

**F-Table, Critical Values, 5 Percent in Upper Tail**

Degrees of freedom for the numerator along top row

Degrees of freedom for the denominator along side row

| | **10** | **12** | **15** | **20** | **24** | **30** |
|---|---|---|---|---|---|---|
| **25** | 2.24 | 2.16 | 2.09 | 2.01 | 1.96 | 1.92 |
| **30** | 2.16 | 2.09 | 2.01 | 1.93 | 1.89 | 1.84 |
| **40** | 2.08 | 2.00 | 1.92 | 1.84 | 1.79 | 1.74 |

Abby Ness is an analyst for a firm that specializes in evaluating firms involved in mineral extraction. Ness believes that the earnings of copper extracting firms are more volatile than those of bauxite extraction firms. In order to test this, Ness examines the volatility of returns for 31 copper firms and 25 bauxite firms. The standard deviation of earnings for copper firms was $2.69, while the standard deviation of earnings for bauxite firms was $2.92. Ness's Null Hypothesis is $\sigma_1^2 = \sigma_2^2$. Based on the samples, can we reject the null hypothesis at a 90% confidence level using an F-statistic? Null is:

**A)** rejected. The F-value exceeds the critical value by 0.71.

**B)** not rejected.

**C)** rejected. The F-value exceeds the critical value by 0.849.

---

## Question #34 of 86

Question ID: 1456610

Which one of the following is the *most* appropriate set of hypotheses to use when a researcher is trying to demonstrate that a return is greater than the risk-free rate? The null hypothesis is framed as a:

**A)** greater than statement and the alternative hypothesis is framed as a less than or equal to statement.

**B)** less than or equal to statement and the alternative hypothesis is framed as a greater than statement.

**C)** less than statement and the alternative hypothesis is framed as a greater than or equal to statement.

---

## Question #35 of 86

Question ID: 1456640

The power of the test is:

**A)** the probability of rejecting a false null hypothesis.

**B)** equal to the level of confidence.

**C)** the probability of rejecting a true null hypothesis.

---

## Question #36 of 86

Question ID: 1456626

A Type I error is made when the researcher:

**A)** rejects the null hypothesis when it is actually true.

**B)** rejects the alternative hypothesis when it is actually true.

**C)** fails to reject the null hypothesis when it is actually false.

---

## Question #37 of 86

Question ID: 1456632

Which of the following statements about hypothesis testing is *most* accurate? A Type I error is the probability of:

**A)** rejecting a true null hypothesis.

**B)** rejecting a true alternative hypothesis.

**C)** failing to reject a false hypothesis.

---

## Question #38 of 86

Question ID: 1456621

If a two-tailed hypothesis test has a 5% probability of rejecting the null hypothesis when the null is true, it is *most likely* that the:

**A)** probability of a Type I error is 2.5%.

**B)** power of the test is 95%.

**C)** significance level of the test is 5%.

---

## Question #39 of 86

Question ID: 1456620

Which of the following statements about hypothesis testing is *most* accurate? A Type II error is the probability of:

**A)** failing to reject a false null hypothesis.

**B)** rejecting a true alternative hypothesis.

**C)** rejecting a true null hypothesis.

---

## Question #40 of 86

Question ID: 1456612

Brian Ci believes that the average return on equity in the airline industry, μ, is less than 5%. What are the appropriate null ($H_0$) and alternative ($H_a$) hypotheses to test this belief?

**A)** $H_0$: $\mu < 0.05$ versus $H_a$: $\mu > 0.05$.

**B)** $H_0$: $\mu < 0.05$ versus $H_a$: $\mu \geq 0.05$.

**C)** $H_0$: $\mu \geq 0.05$ versus $H_a$: $\mu < 0.05$.

---

## Question #41 of 86

Question ID: 1456616

Susan Bellows is comparing the return on equity for two industries. She is convinced that the return on equity for the discount retail industry (DR) is greater than that of the luxury retail (LR) industry. What are the hypotheses for a test of her comparison of return on equity?

**A)** $H_0$: $\mu_{DR} > \mu_{LR}$ versus $H_a$: $\mu_{DR} \leq \mu_{LR}$.

**B)** $H_0$: $\mu_{DR} \leq \mu_{LR}$ versus $H_a$: $\mu_{DR} > \mu_{LR}$.

**C)** $H_0$: $\mu_{DR} < \mu_{LR}$ versus $H_a$: $\mu_{DR} \geq \mu_{LR}$.

---

## Question #42 of 86

Question ID: 1456630

John Jenkins, CFA, is performing a study on the behavior of the mean P/E ratio for a sample of small-cap companies. Which of the following statements is *most* accurate?

**A)** A Type I error represents the failure to reject the null hypothesis when it is, in fact, false.

**B)** One minus the confidence level of the test represents the probability of making a Type II error.

**C)** The significance level of the test represents the probability of making a Type I error.

---

## Question #43 of 86

Question ID: 1456658

**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 |
| **21** | 1.323 | 1.721 | 2.080 | 2.518 | 2.831 | 3.819 |

In a test of whether a population mean is equal to zero, a researcher calculates a t-statistic of –2.090 based on a sample of 20 observations. If you choose a 5% significance level, you should:

**A)** fail to reject the null hypothesis that the population mean is equal to zero.

**B)** reject the null hypothesis and conclude that the population mean is not significantly different from zero.

**C)** reject the null hypothesis and conclude that the population mean is significantly different from zero.

---

## Question #44 of 86

Question ID: 1456652

**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** |
| **28** | 1.313 | 1.701 | 2.048 | 2.467 | 2.763 | 3.674 |
| **29** | 1.311 | 1.699 | 2.045 | 2.462 | 2.756 | 3.659 |
| **30** | 1.310 | 1.697 | 2.042 | 2.457 | 2.750 | 3.646 |

In order to test if the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken and the sample value of the computed test statistic, $t_{n-1} = 1.2$. If you choose a 5% significance level you should:

**A)** reject the null hypothesis and conclude that the population mean is greater than 100.

**B)** fail to reject the null hypothesis and conclude that the population mean is not greater than 100.

**C)** fail to reject the null hypothesis and conclude that the population mean is greater than 100.

---

## Question #45 of 86

Question ID: 1456609

Jill Woodall believes that the average return on equity in the retail industry, μ, is less than 15%. If Woodall wants to examine the data statistically, what are the appropriate null ($H_0$) and alternative ($H_a$) hypotheses for her study?

**A)** $H_0$: $\mu \geq 0.15$ versus $H_a$: $\mu < 0.15$.

**B)** $H_0$: $\mu < 0.15$ versus $H_a$: $\mu > 0.15$.

**C)** $H_0$: $\mu < 0.15$ versus $H_a$: $\mu \geq 0.15$.

---

## Question #46 of 86

Question ID: 1456660

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

**A)** In a test of the population mean, if the population variance is unknown, we should use a *t*-distributed test statistic.

**B)** In the case of a test of the difference in means of two independent samples, we use a *t*-distributed test statistic.

**C)** In a test of the population mean, if the population variance is unknown and the sample is small, we should use a *z*-distributed test statistic.

---

## Question #47 of 86

Question ID: 1456672

In order to test if Stock A is more volatile than Stock B, prices of both stocks are observed to construct the sample variance of the two stocks. The appropriate test statistics to carry out the test is the:

**A)** Chi-square test.

**B)** t test.

**C)** F test.

---

## Question #48 of 86

Question ID: 1456661

**Cumulative Z-Table**

| z | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 |
|---|---|---|---|---|---|---|
| **1.2** | 0.8925 | 0.8944 | 0.8962 | 0.8980 | 0.8997 | 0.9015 |
| **1.3** | 0.9099 | 0.9115 | 0.9131 | 0.9147 | 0.9162 | 0.9177 |
| **1.4** | 0.9251 | 0.9265 | 0.9279 | 0.9292 | 0.9306 | 0.9319 |
| **1.5** | 0.9382 | 0.9394 | 0.9406 | 0.9418 | 0.9429 | 0.9441 |
| **1.6** | 0.9495 | 0.9505 | 0.9515 | 0.9525 | 0.9535 | 0.9545 |

Maria Huffman is the Vice President of Human Resources for a large regional car rental company. Last year, she hired Graham Brickley as Manager of Employee Retention. Part of the compensation package was the chance to earn one of the following two bonuses: if Brickley can reduce turnover to less than 30%, he will receive a 25% bonus. If he can reduce turnover to less than 25%, he will receive a 50% bonus (using a significance level of 10%). The population of turnover rates is normally distributed. The population standard deviation of turnover rates is 1.5%. A recent sample of 100 branch offices resulted in an average turnover rate of 24.2%. Which of the following statements is *most* accurate?

**A)** Brickley should not receive either bonus.

**B)** For the 50% bonus level, the test statistic is -5.33 and Huffman should give Brickley a 50% bonus.

**C)** For the 50% bonus level, the critical value is -1.65 and Huffman should give Brickley a 50% bonus.

---

## Question #49 of 86

Question ID: 1456664

An analyst plans to use the following test statistic:

$$t_{n-1} = \frac{\bar{x} - \mu_0}{s/\sqrt{n}}$$

This test statistic is appropriate for a hypothesis about:

**A)** the population mean of a normal distribution with unknown variance.

**B)** the mean difference of two normal populations.

**C)** the equality of two population means of two normally distributed populations based on independent samples.

## Question #50 of 86

Question ID: 1456614

Jo Su believes that there should be a negative relation between returns and systematic risk. She intends to collect data on returns and systematic risk to test this theory. What is the appropriate alternative hypothesis?

**A)** $H_a$: $\rho < 0$.

**B)** $H_a$: $\rho > 0$.

**C)** $H_a$: $\rho \neq 0$.

---

## Question #51 of 86

Question ID: 1456627

A Type I error:

**A)** rejects a false null hypothesis.

**B)** fails to reject a false null hypothesis.

**C)** rejects a true null hypothesis.

---

## Question #52 of 86

Question ID: 1456645

Of the following explanations, which is *least likely* to be a valid explanation for divergence between statistical significance and economic significance?

**A)** Adjustment for risk.

**B)** Data errors.

**C)** Transactions costs.

---

## Question #53 of 86

Question ID: 1456631

Which of the following statements about hypothesis testing is *least* accurate?

**A)** A Type I error is the probability of rejecting the null hypothesis when the null hypothesis is false.

**B)** A Type II error is the probability of failing to reject a null hypothesis that is not true.

**C)** The significance level is the probability of making a Type I error.

---

## Question #54 of 86

Question ID: 1456608

James Ambercrombie believes that the average return on equity in the utility industry, μ, is greater than 10%. What is null ($H_0$) and alternative ($H_a$) hypothesis for his study?

**A)** $H_0$: $\mu \geq 0.10$ versus $H_a$: $\mu < 0.10$.

**B)** $H_0$: $\mu = 0.10$ versus $H_a$: $\mu \neq 0.10$.

**C)** $H_0$: $\mu \leq 0.10$ versus $H_a$: $\mu > 0.10$.

---

## Question #55 of 86

Question ID: 1456606

Robert Patterson, an options trader, believes that the return on options trading is higher on Mondays than on other days. In order to test his theory, he formulates a null hypothesis. Which of the following would be an appropriate null hypothesis? Returns on Mondays are:

**A)** not greater than returns on other days.

**B)** greater than returns on other days.

**C)** less than returns on other days.

---

## Question #56 of 86

Question ID: 1456684

To test a hypothesis that the population correlation coefficient of two variables is equal to zero, an analyst collects a sample of 24 observations and calculates a sample correlation coefficient of 0.37. Can the analyst test this hypothesis using only these two inputs?

**A)** Yes.

**B)** No, because the sample means of the two variables are also required.

**C)** No, because the sample standard deviations of the two variables are also required.

---

## Question #57 of 86

Question ID: 1456686

A researcher wants to test whether the weekly returns on two stocks are correlated. The test statistic for the appropriate test follows a:

**A)** chi-square distribution.

**B)** t-distribution with n − 1 degrees of freedom.

**C)** t-distribution with n − 2 degrees of freedom.

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## Question #58 of 86

Question ID: 1456647

A p-value of 0.02% means that a researcher:

**A)** can reject the null hypothesis at both the 5% and 1% significance levels.

**B)** can reject the null hypothesis at the 5% significance level but cannot reject at the 1% significance level.

**C)** cannot reject the null hypothesis at either the 5% or 1% significance levels.

---

## Question #59 of 86

Question ID: 1456641

If the null hypothesis is innocence, then the statement "It is better that the guilty go free, than the innocent are punished" is an example of preferring a:

**A)** greater percentage of significance.

**B)** Type I error over a Type II error.

**C)** Type II error over a Type I error.

---

## Question #60 of 86

Question ID: 1456644

For a hypothesis test regarding a population parameter, an analyst has determined that the probability of failing to reject a false null hypothesis is 18%, and the probability of rejecting a true null hypothesis is 5%. The power of the test is:

**A)** 0.82.

**B)** 0.18.

**C)** 0.95.

---

## Question #61 of 86

Question ID: 1456662

In order to test if the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken. The sample value of the computed *z*-statistic = 3.4. The appropriate decision at a 5% significance level is to:

**A)** reject the null hypotheses and conclude that the population mean is greater than 100.

**B)** reject the null hypothesis and conclude that the population mean is not equal to 100.

**C)** reject the null hypothesis and conclude that the population mean is equal to 100.

---

## Question #62 of 86

Question ID: 1456680

A researcher has random samples from two populations that are approximately normally distributed. He uses the ratio of the larger sample variance to the smaller sample variance to test the hypothesis that the true variances of the two populations are equal. The test statistic he has calculated will have what type of distribution?

**A)** The F-distribution.

**B)** The chi-squared distribution.

**C)** The *t*-distribution.

---

## Question #63 of 86

Question ID: 1456603

Which of the following is the correct sequence of events for testing a hypothesis?

**A)** State the hypothesis, select the level of significance, formulate the decision rule, compute the test statistic, and make a decision.

**B)** State the hypothesis, formulate the decision rule, select the level of significance, compute the test statistic, and make a decision.

**C)** State the hypothesis, select the level of significance, compute the test statistic, formulate the decision rule, and make a decision.

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## Question #64 of 86

Question ID: 1456638

An analyst decides to select 10 stocks for her portfolio by placing the ticker symbols for all the stocks traded on the New York Stock Exchange in a large bowl. She randomly selects 20 stocks and will put every other one chosen into her 10-stock portfolio. The analyst used:

**A)** dual random sampling.

**B)** stratified random sampling.

**C)** simple random sampling.

---

## Question #65 of 86

Question ID: 1456682

A test of whether a mutual fund's performance rank in one period provides information about the fund's performance rank in a subsequent period is *best* described as a:

**A)** mean-rank test.

**B)** nonparametric test.

**C)** parametric test.

---

## Question #66 of 86

Question ID: 1456653

**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 |
| **21** | 1.323 | 1.721 | 2.080 | 2.518 | 2.831 | 3.819 |

In a two-tailed test of a hypothesis concerning whether a population mean is zero, Jack Olson computes a *t*-statistic of 2.7 based on a sample of 20 observations where the distribution is normal. If a 5% significance level is chosen, Olson should:

**A)** fail to reject the null hypothesis that the population mean is not significantly different from zero.

**B)** reject the null hypothesis and conclude that the population mean is not significantly different from zero.

**C)** reject the null hypothesis and conclude that the population mean is significantly different from zero.

---

## Question #67 of 86

Question ID: 1456643

Which of the following statements about hypothesis testing is *most* accurate?

**A)** The power of a test is one minus the probability of a Type I error.

**B)** If you can disprove the null hypothesis, then you have proven the alternative hypothesis.

**C)** The probability of a Type I error is equal to the significance level of the test.

---

## Question #68 of 86

Question ID: 1456671

An analyst has calculated the sample variances for two random samples from independent normally distributed populations. The test statistic for the hypothesis that the true population variances are equal is a(n):

**A)** *F*-statistic.

**B)** chi-square statistic.

**C)** *t*-statistic.

---

## Question #69 of 86

Question ID: 1456675

A test of whether the population variance is equal to a hypothesized value requires the use of a test statistic that is:

**A)** *t*-distributed.

**B)** chi-squared distributed.

**C)** *F*-distributed.

---

## Question #70 of 86

Question ID: 1456663

Brandee Shoffield is the public relations manager for Night Train Express, a local sports team. Shoffield is trying to sell advertising spots and wants to know if she can say with 90% confidence that average home game attendance is greater than 3,000. Attendance is approximately normally distributed. A sample of the attendance at 15 home games results in a mean of 3,150 and a standard deviation of 450. Which of the following statements is *most* accurate?

**A)** With an unknown population variance and a small sample size, no statistic is available to test Shoffield's hypothesis.

**B)** Shoffield should use a two-tailed Z-test.

**C)** The calculated test statistic is 1.291.

---

## Question #71 of 86

Question ID: 1456678

A manager wants to test whether two normally distributed and independent populations have equal variances. The appropriate test statistic for this test is a:

**A)** F-statistic.

**B)** t-statistic.

**C)** chi-square statistic.

---

## Question #72 of 86

Question ID: 1456665

**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** |
| **10** | 1.372 | 1.812 | 2.228 | 2.764 | 3.169 | 4.587 |
| **11** | 1.363 | 1.796 | 2.201 | 2.718 | 3.106 | 4.437 |
| **12** | 1.356 | 1.782 | 2.179 | 2.681 | 3.055 | 4.318 |
| **22** | 1.321 | 1.717 | 2.074 | 2.508 | 2.819 | 3.792 |
| **23** | 1.319 | 1.714 | 2.069 | 2.500 | 2.807 | 3.768 |
| **24** | 1.318 | 1.711 | 2.064 | 2.492 | 2.797 | 3.745 |

Roy Fisher, CFA, wants to determine whether there is a significant difference, at the 5% significance level, between the mean monthly return on Stock GHI and the mean monthly return on Stock JKL. Fisher assumes the variances of the two stocks' returns are equal. Using the last 12 months of returns on each stock, Fisher calculates a *t*-statistic of 2.0 for a test of equality of means. Based on this result, Fisher's test:

**A)** rejects the null hypothesis, and Fisher can conclude that the means are equal.

**B)** fails to reject the null hypothesis.

**C)** rejects the null hypothesis, and Fisher can conclude that the means are not equal.

---

## Question #73 of 86

Question ID: 1456633

Which of the following statements about hypothesis testing is *least* accurate?

**A)** If the alternative hypothesis is $H_a$: $\mu > \mu_0$, a two-tailed test is appropriate.

**B)** The null hypothesis is a statement about the value of a population parameter.

**C)** A Type II error is failing to reject a false null hypothesis.

---

## Question #74 of 86

Question ID: 1456681

Which of the following statements about parametric and nonparametric tests is *least* accurate?

**A)** The test of the mean of the differences is used when performing a paired comparison.

**B)** Nonparametric tests rely on population parameters.

**C)** The test of the difference in means is used when you are comparing means from two independent samples.

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## Question #75 of 86

Question ID: 1456657

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than $62,500 per year. What is the test statistic given a sample of 125 newly acquired CFA charterholders with a mean starting salary of $65,000 and a standard deviation of $2,600?

**A)** 0.96.

**B)** -10.75.

**C)** 10.75.

---

## Question #76 of 86

Question ID: 1456651

An analyst conducts a two-tailed test to determine if mean earnings estimates are significantly different from reported earnings. The sample size is greater than 25 and the computed test statistic is 1.25. Using a 5% significance level, which of the following statements is *most* accurate?

**A)** The analyst should reject the null hypothesis and conclude that the earnings estimates are significantly different from reported earnings.

**B)** To test the null hypothesis, the analyst must determine the exact sample size and calculate the degrees of freedom for the test.

**C)** The analyst should fail to reject the null hypothesis and conclude that the earnings estimates are not significantly different from reported earnings.

---

## Question #77 of 86

Question ID: 1456648

A hypothesis test has a *p*-value of 1.96%. An analyst should reject the null hypothesis at a significance level of:

**A)** 6%, but not at a significance level of 4%.

**B)** 4%, but not at a significance level of 2%.

**C)** 3%, but not at a significance level of 1%.

---

## Question #78 of 86

Question ID: 1456605

In the process of hypothesis testing, what is the proper order for these steps?

**A)** Collect the sample and calculate the sample statistics. State the hypotheses. Specify the level of significance. Make a decision.

**B)** Specify the level of significance. State the hypotheses. Make a decision. Collect the sample and calculate the sample statistics.

**C)** State the hypotheses. Specify the level of significance. Collect the sample and calculate the test statistics. Make a decision.

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## Question #79 of 86

Question ID: 1456613

Jill Woodall believes that the average return on equity in the retail industry, μ, is less than 15%. What are the null ($H_0$) and alternative ($H_a$) hypotheses for her study?

**A)** $H_0$: μ < 0.15 versus $H_a$: μ ≥ 0.15.

**B)** $H_0$: μ ≤ 0.15 versus $H_a$: μ > 0.15.

**C)** $H_0$: μ ≥ 0.15 versus $H_a$: μ < 0.15.

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## Question #80 of 86

Question ID: 1456623

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than $54,000 per year. Assuming a normal distribution, what is the test statistic given a sample of 75 newly acquired CFA charterholders with a mean starting salary of $57,000 and a standard deviation of $1,300?

**A)** -19.99.

**B)** 2.31.

**C)** 19.99.

---

## Question #81 of 86

Question ID: 1456635

For a two-tailed test of hypothesis involving a z-distributed test statistic and a 5% level of significance, a calculated z-statistic of 1.5 indicates that:

**A)** the null hypothesis is rejected.

**B)** the test is inconclusive.

**C)** the null hypothesis cannot be rejected.

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## Question #82 of 86

Question ID: 1456674

The test of the equality of the variances of two normally distributed populations requires the use of a test statistic that is:

**A)** z-distributed.

**B)** Chi-squared distributed.

**C)** F-distributed.

---

## Question #83 of 86

Question ID: 1456679

Joe Bay, CFA, wants to test the hypothesis that the variance of returns on energy stocks is equal to the variance of returns on transportation stocks. Bay assumes the samples are independent and the returns are normally distributed. The appropriate test statistic for this hypothesis is:

**A)** a t-statistic.

**B)** a Chi-square statistic.

**C)** an F-statistic.

---

## Question #84 of 86

Question ID: 1456687

A test of the hypothesis that two categorical variables are independent is *most likely* to employ:

**A)** contingency tables.

**B)** population parameters.

**C)** *t*-statistics.

---

## Question #85 of 86

Question ID: 1456685

Student's t-distribution, level of significance for a two-tailed test:

| df | 0.20 | 0.10 | 0.05 | 0.02 | 0.01 | 0.001 |
|---|---|---|---|---|---|---|
| **16** | 1.337 | 1.746 | 2.120 | 2.583 | 2.921 | 4.015 |
| **17** | 1.333 | 1.740 | 2.110 | 2.567 | 2.898 | 3.965 |
| **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 |

Based on a sample correlation coefficient of −0.525 from a sample size of 19, an analyst calculates a t-statistic of $\frac{-0.525\sqrt{19-2}}{\sqrt{1-(-0.525)^2}}$ = −2.5433. The analyst can reject the hypothesis that the population correlation coefficient equals zero:

**A)** at a 5% significance level, but not at a 2% significance level.

**B)** at a 1% significance level.

**C)** at a 2% significance level, but not at a 1% significance level.

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## Question #86 of 86

Question ID: 1456683

Critical values from Student's t-distribution for a two-tailed test at a 5% significance level:

| df | |
|---|---|
| 28 | 2.048 |
| 29 | 2.045 |
| 30 | 2.042 |

A researcher wants to test a hypothesis that two variables have a population correlation coefficient equal to zero. For a sample size of 30, the appropriate critical value for this test is plus-or-minus:

**A)** 2.042.

**B)** 2.048.

**C)** 2.045.