

2) Which of the following hypothesis tests use a z test statistic?

- A) Matched Pairs
- B) Single Proportion
- C) Two Proportions
- D) Goodness-of-Fit
- E) Single Mean: σ Known
- F) Independence
- G) Two Variances
- H) Single Mean: σ Not Known
- I) Single Variance
- J) Two Means: Independent Samples

Note: Some of these may depend on the specific text or course material being used. For instance, H and J are true only if the sample size is 30 or more, otherwise the t-statistic is used. They may be looking for only B, C, and E here.

3) Of 345 randomly selected medical students, 29 said that they planned to work in a rural community. Find a 95% confidence interval for the true proportion of all medical students who plan to work in a rural community.

- A) (0.0493, 0.119)
- B) (0.0456, 0.123)
- C) (0.0548, 0.113)
- D) (0.0595, 0.109)

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A random sample of 16 women resulted in blood pressure levels with a standard deviation of 22.7 mm Hg. A random sample of 17 men resulted in blood pressure levels with a standard deviation of 20.6 mm Hg. Calculate the necessary test statistic to test the claim that blood pressure levels for women have larger variance than those for men.

- A) 1.1019
- B) 0.8235
- C) 1.214
- D) 0.9075

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From the example statistics, find the value of \bar{p} used to test the hypothesis that the population proportions are equal.

$$n_1 = 100 \quad n_2 = 100 \quad p_1 = 0.1 \quad p_2 = 0.12$$

A) 0.332

B) 0.110

C) 0.220

D) 0.138

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Which of the following hypothesis tests use a χ^2 test statistic?

A) Single Variance

B) Single Mean: σ Not Known

C) Matched Pairs

D) Two Proportions

E) Goodness-of-Fit

F) Independence

G) Single Mean: σ Known

H) Two Means: Independent Samples

I) Single Proportion

J) Two Variances

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A laboratory tested 88 chicken eggs and found that the mean amount of cholesterol was 223 milligrams with $\sigma = 10.3$ milligrams. Construct a 95 percent confidence interval for the true mean cholesterol content, μ , of all such eggs.

A) (220, 224)

B) (220, 225)

C) (222, 226)

D) (221, 225)

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Managers rate employees according to job performance and attitude. The results for several randomly selected employees are given below.

Performance 59 63 65 69 58 77 76 69 70 64

Attitude 72 67 78 82 75 87 92 83 87 78

Use the given data to find the equation of the regression line.

A) $y = 2.81 + 1.35x$

B) $y = -47.3 + 2.02x$

C) $y = 11.7 + 1.02x$

D) $y = 92.3 - 0.669x$

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Managers rate employees according to job performance and attitude. The results for several randomly selected employees are given below.

Performance 59 63 65 69 58 77 76 69 70 64

Attitude 72 67 78 82 75 87 92 83 87 78

Find the value of the linear correlation coefficient r .

A) 0.610

B) 0.729

C) 0.916

D) 0.863

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The effectiveness of a headache medicine is tested by measuring the intensity of a headache in patients before and after drug treatment. The data consist of before and after intensities for each patient. Determine whether the samples are independent or consist of matched pairs.

A) Matched Pairs

B) Independent Samples

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A sociologist develops a test to measure attitudes about public transportation, and 27 randomly selected subjects are given the test. Their mean score is 76.2 and their standard deviation is 21.4. Construct the 95% confidence interval for the mean, μ , score of all such subjects.

A) (67.7, 84.7)

B) (64.2, 88.2)

C) (69.2, 83.2)

D) (74.6, 77.8)

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The test statistic in a left-tailed test is $z = -2.05$. At a .05 significance level, would you reject the null hypothesis?

A) Yes

B) No

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A psychologist develops a test to measure attitudes about public transportation, and 27 randomly selected subjects are given the test. Their mean score is 76.2 and their standard deviation is 21.4. Construct the 95% confidence interval for the standard deviation, σ , of the scores of all subjects.

- A) (17.2, 27.2)
- B) (16.6, 28.6)
- C) (17.5, 27.8)
- D) (16.9, 29.3)

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Assume that the data has a normal distribution and the population standard deviation is known. Find the critical z value used for a two-tailed test with $\alpha = 0.05$.

- A) ± 2.575
- B) ± 1.645
- C) ± 1.96
- D) ± 1.764

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Use the margin of error, confidence level, and a standard deviation σ to find the minimum sample size require to estimate an unknown population mean μ .

Margin of error: \$133, confidence level: 95%, $\sigma = \$530$

- A) 5
- B) 62
- C) 54
- D) 2

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Suppose you wish to test the claim that μ_d , the mean value of the differences d for a population of paired data, is greater than 0. Given a sample of $n = 15$ and a significance level of $\alpha = 0.01$, what criterion would be used for rejecting the null hypothesis?

- A) Reject the null hypothesis if test statistic > 2.602
- B) Reject the null hypothesis if test statistic < 2.624
- C) Reject the null hypothesis if test statistic > 2.977 or < -2.977
- D) Reject the null hypothesis if test statistic > 2.624

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Find the critical value(s) of χ^2 based on the given information.

$$H_1: \sigma < 0.14$$

$$n = 23$$

$$\alpha = 0.10$$

A) 30.813

B) 14.042

C) -30.813

D) 14.848

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Which of the following hypothesis tests use a **F** test statistic?

A) Independence

B) Single Variance

C) Single Proportion

D) Goodness-of-Fit

E) Single Mean: σ Known

F) Two Means: Independent Samples

G) Single Mean: σ Not Known

H) Two Proportions

I) Matched Pairs

J) Two Variances

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The owner of a football team claims that the average attendance at games is over 794, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms.

A) There is sufficient evidence to support the claim that the mean attendance is greater than 794.

B) There is sufficient evidence to support the claim that the mean attendance is less than 794.

C) There is not sufficient evidence to support the claim that the mean attendance is less than 794.

D) There is not sufficient evidence to support the claim that the mean attendance is greater than 794.

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Which of the following hypothesis tests use a **t** test statistic?

- A) Two Proportions
- B) Matched Pairs
- C) Single Variance
- D) Goodness-of-Fit
- E) Two Means: Independent Samples
- F) Independent
- G) Single Mean: σ Not Known
- H) Two Variances
- I) Single Proportion
- J) Single Mean: σ Known

Note: As with problem #2, the choices E and G are only true if the sample size is less than 30. If the sample size is 30 or more, the z test statistic would be used for those two types of tests.

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What is the null hypothesis in a goodness-of-fit test?

- A) The observed frequency distribution fits the claimed distribution.
- B) The row and column variable are dependent.
- C) The row and column variable are independent.
- D) The observed frequency distribution does not fit the claimed distribution