**MAT 150.5 Statistics Assignment #16**

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Find the P-value for the indicated hypothesis test with the given standardized test statistics z. Decide whether to reject *H0* for the given level of significance α.

1. Left-tailed test, z=-1.32, α=1.10
2. Right-tailed test, z=2.46, α=0.01
3. Two-tailed test, z=-1.68, α=0.05

In exercises 4-8, match each P-value with the graph that displays its area. The graphs are labeled (a)-(d)

1. P=0.0089
2. P=0.3050
3. P=0.0688
4. P=0.0287



1. The mean running time of a certain variety of nickel-cadmium rechargeable flashlight battery is known to be normally distributed with a mean of 8.5. A change in production method for this battery has been proposed, and a simple random sample of 64 batteries produced by the new method has mean running time of 8.72 hours. Assume the population is normally distributed with a standard deviation of 0.55 hour as known and remains unchanged, test a claim that the new production method improving the battery mean running time using 0.05 significance level.
2. A company that makes cola drinks states that the mean caffeine content per 12-ounce bottle of cola 40milligrams. You want to test this claim. During your tests, you find that a random sample of thirty 12-ounce bottles of cola has a mean caffeine content of 39.2 milligrams. Assume the population is normally distributed with a standard deviation of 7.5 milligrams. At α=0.01, can you reject the company’s claim?

Find the critical value(s) for the indicated t-test, level of significance α, and sample size n.

1. Right-tailed test, α=0.05, n=23
2. Left-tailed test, α=0.10, n=20
3. Two-tailed test, α=0.05, n=27

State whether the standardized test statistic t indicates that you should reject the null hypothesis. Explain.







1. A random sample of 61 medical school applicants at a university has a mean raw score of 31 with a standard deviation of 2.5 on the multiple choice portions of the Medical College Admissions Test. A student says that the mean raw score for the school’s applicants is more than 30. At α=0.01, is there enough evidence to support the students’ claim?
2. Using a P-value, evaluate the student’s claim.
3. Using Rejection Regions for a z-test, evaluate the student’s claim.
4. The U.S. Department of Agriculture claims that the mean consumption of coffee by a person in the United States is 24.2 gallons per year. A random sample of 101 people in the United States shows that the mean coffee consumption is 23.5 gallons per year with a standard deviation of 3.2 gallons. At α=0.05, can you reject the claim?
   1. Using a P-value, evaluate the claim.
   2. Using Rejection Regions for a z-test, evaluate the claim.