

**The following problems are a sample of what may be on your Test 3. These problems do not constitute all questions and/or problems on Test 3.**

1. A low-handicap golfer who uses Titleist brand golf balls observed that his average drive is 230 yards and the standard deviation is 10 yards. Nike has just introduced a new ball, which has been endorsed by a major golf competitor. Nike claims that the ball will travel farther than Titleist. To test the claim, the golfer hits 100 drives with a Nike ball and measures the distances. Conduct a test to determine if Nike is correct. Use 5% significance level.
2. On a per capita basis, the U.S. spends far more on health than any other country. To help assess the costs, annual surveys are taken. One such survey asks a sample of Americans to report the number of times they visited a health care professional in the year. The data for 2009 were recorded. Estimate the 95% confidence the total number of visits to a health care professional, if the US population was 307,439,000 at the time of this survey.
3. A parking control officer is conducting an analysis of the amount of time left on parking meters. A quick survey of 15 cars that have just left their metered parking spaces produce the times (in minutes) that are located in the data file. Estimate with 95% confidence the mean amount of time left for all the city's meters.
4. A parking control officer is conducting an analysis of the amount of time left on parking meters. A quick survey of 15 cars that have just left their metered parking spaces produce the times (in minutes) that are located in the data file. Test to see if the amount of time left on the meters is less than 19 minutes.
5. The results of an annual Claimant Satisfaction Survey of policyholders who have had a claim with State Farm Insurance Co revealed a 90% satisfaction rate for claim service. To check the accuracy of this claim, a random sample of State Farm claimants was asked to rate whether they were satisfied with the quality of the claimant service, (1=satisfied, and 2=unsatisfied). Can we infer that the satisfaction rate is less than 90%?
6. An important decision faces Christmas holiday celebrators: buy a real or artificial tree? A sample of 1508 men and women respondents, 18 years of age and over, was interviewed. They were asked which type of tree they preferred, real (1) or artificial (2) tree. If there are 6 million households in the area in which the survey was conducted, estimate with 99% confidence, the total number of households that would prefer artificial Christmas trees.
7. Who spends more on their vacations, golfers or skiers? A travel agency survey 15 customers who regularly take their spouses on either a skiing or a golfing vacation. The amounts spent of vacations last year are shown in the data file. Can we infer that golfers and skiers differ in their vacation expense?

8. The data given below refer to the satisfaction ratings recorded by 15 customers for three different fast-food chains (on a scale of 1 – 10, with 10 being the most satisfied).

<b>Burger King</b>	<b>McDonalds</b>	<b>Jack In The Box</b>
7	8	9
7	9	7
6	7	8
5	6	10
3	9	8

What type of a statistical test would you conduct to see if there are differences between the satisfaction ratings of these chains?

9. The data given below are the number of hours six students studied for a final exam and their final exam scores. What analysis would you perform to predict the exam score in future classes?

<b>Hours of Study</b>	<b>Exam Score</b>
3	86
5	95
4	92
4	83
2	78
3	82