**QSO 530: Z or t Tests**

**Problem 1**

A random sample of 25 deliveries from a downtown Chicago department store resulted in sample information of =10.2 miles and s = 5.7 miles. At the 0.05 level of significance, does this show sufficient evidence to reject the claim that the average delivery is no more than 8.5 miles?

**Problem 2**

A union representing the employees of a small industrial plant claims that it takes an employee on average at least 25 minutes to reach the closest local health clinic by cab; therefore, an industrial nurse should be hired. Management obtained a random sample of 50 one-way travel times to the clinic. The sample had a mean of 19.4 minutes and a standard deviation of 9.6 minutes. Does management have sufficient evidence to reject the union’s claim? α = 0.01

**Problem 3**

Merit increases are given at the discretion of the division director. The average increase at the company is $100.00. The personnel manager is concerned that a certain division supervisor is too lenient in awarding merit increases. She takes a sample of 20 randomly selected employees from that division and finds a mean increase of $107.50 with a standard deviation of $10.50. Assuming the increases are normally distributed, is there enough evidence to support the personnel manager’s concern at a 0.05 level of significance?