Problem Statement

Use SAS data set on Cars around the world which has been aptly named Cars. This data is in the SASHELP library and can be accessed and manipulated by creating a new data set and using the SET statement to set it equal to the cars data set. Note: When using the SET statement make sure you indicate that the cars data set is named SASHELP.Cars so that SAS properly understands the reference. In total this assignment has three parts.

Part A) A luxury car dealership owner is considering restocking their inventory with more luxury cars to meet a perceived increase in demand of luxury car purchases for the holiday season. This car owner has access to the car data set and wants you generate one output table that lists the average MSRP, city mpg, highway mpg, and number of cylinders of BMW, Audi, and Infiniti vehicles. Which vehicle make has the highest MSRP, which has the highest City and Highway mpg?

Part B) After careful consideration the dealership owner has decided that he will be purchasing Audis to restock his inventory for the holiday season, believing they will be the more popular option. He is planning on filming a commercial where he is going to make the claim that the Audi vehicles he is purchasing will have an average city mpg of over 20 miles but wants you to run a test to check his claim. Before you run a hypothesis test to check the mpg, he reminds you to check if the assumptions of normality are violated by checking the appropriate analytics. Report the results of the assumptions evaluation as well as your main analysis in context of the scenario, should the dealership owner run the commercial?

Part C) The dealership owner is now second-guessing whether he wants to purchase Audis for his inventory restock as he now hears that the BMW models have significantly better Highway mpg than the Audi models. Once again, he is asking you to run a test to compare if the average Highway mpg of the BMW vehicles are statistically different from that of the Audi's Highway mpg. He is asking you to run this test with an alpha level of .05. Report whether the mpg's are significantly different and if so by how much, and justify your answer with p-values and t-scores (t-values).Assume that if the mpgs are not statistically different that he will still purchase the Audi's and use this information to state which he should purchase.