Group Members:_____

C-Level (21 points)

Name the type of sampling that was used and what bias might be a concern. Briefly explain why it may be a concern. **There may be more than one bias.**

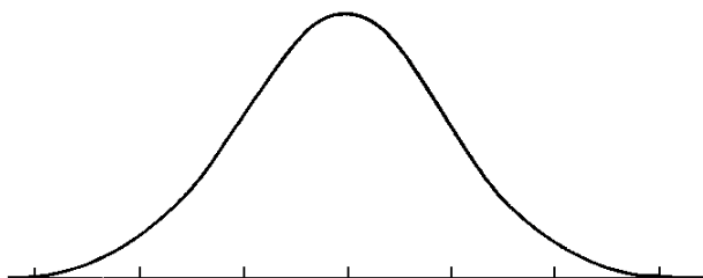| 1. A poll taken at a statistics support website got 12,457 responses. The majority said they enjoy doing statistics homework. Type of sample: Bias and Explanation:	2. For a Political Science class, you'd like to take a survey of Catholics in your city. A list of Catholic churches shows 17 within city limits. You decide to pick three churches at random. You survey all the members attending those three churches the following Sunday. Type of sample: Bias and Explanation:

Determine if this was an experiment or an observational study. Then determine the explanatory variable(s) and response variable.

4. A medical journal reported that among 1900 people who had heart attacks, those who drank an average of 19 cups of tea a week were 44% more likely that non-tea drinkers to survive at least 3 years after the heart attack.

5. Some people claim they can relieve a migraine by drinking a large glass of ice water. Researchers recruit migraine sufferers and when they experience a migraine, they will take either a pain reliever or a placebo (they won't know which). Half of each group will take the pill with a small glass of room temperature water; the other group will take the pill will a large glass of ice water. After half an hour, participants will report their pain relief.

The EPA fuel economy estimates for automobile models tested recently predicted a mean of 24.8 mpg and a standard deviation of 6.2 mpg for highway driving. These estimates can be approximated by a Normal Model.

6. Create/label the model below.	7. Find the z-score for a vehicle that averages 18 mpg for highway driving.

8. What percentage of cars average less than 18 mpg?

9. Some people are concerned that new educational standards and high-stakes testing may be driving up drop-out rates for high schoolers. The National Center for Education reported that the drop-out rate for 2004 was 10.3%. One school district whose rate has always been close to the national average reported that 11.8% of their 1782 high school students dropped out last year. Is this evidence that their drop-out rate has increased significantly?
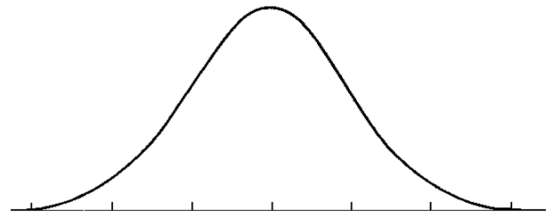
Hypotheses: Null: Alternative:	Conditions:

Model and Math:

Conclusion:

10. For Question #2, describe how you would carry out a stratified sample for the 17 churches. Your instructions should be clear enough that two different people reading your instructions would do the same thing.

11. We want to determine whether listening to music while studying for a test has a positive or negative impact on test scores. Design an experiment. Be sure to use statistics vocabulary.