1. A football coach claims that the average weight of all the opposing teams' members is 225 pounds. For a test of the claim, a sample of 50 players is taken from all the opposing teams. The mean is found to be 230 pounds and the standard deviation is 15 pounds. At $\alpha = 0.01$, test the coach's claim. Find the *P*-value and make the decision.

1. H_0: H_1:
2. Test Statistic:

3. p-value

4.
5. Conclusion:

2. A recent study claimed that the average age of murder victims in a small city was less than or equal to 23.2 years. A sample of 18 recent victims had a mean of 22.6 years and a standard deviation of 2 years. At $\alpha = 0.05$, is the average age higher than originally believed? Assume that the variable is approximately normally distributed.

1. H_0: H_1:
2. Critical value: (with picture)

3. Test Statistic:

4.
5. Conclusion:

3. The financial aid director of a college believes that at least 30% of the students are receiving some sort of financial aid. To see whether his belief is correct, the director selects a sample of 60 students and finds that 15 are receiving financial aid. At $\alpha = 0.05$, test the claim that at least 30% of the students are receiving financial aid.

1. H_0: H_1:
2. Critical value: (with picture)

3. Test Statistic:

4.
5. Conclusion:

4. The standard deviation of the fuel consumption of a certain automobile is hypothesized to be greater than or equal to 4.3 miles per gallon. A sample of 20 automobiles produced a standard deviation of 2.6 miles per gallon. Is the standard deviation really less than previously thought? Use $\alpha = 0.05$.

1. H_0: H_1:
2. Critical value: (with picture)

3. Test Statistic:

4.
5. Conclusion: