Table Number:_____ Group Name: _____

Group Members:_____ _____ _____

Tests of Significance: Means
NBA SCORING

Prior to the 1999-2000 season in the NBA, the league made several rule changes designed to increase scoring. The average number of points scored per game in the previous season had been 183.2. Let μ denote the mean number of points per game in the 1999-2000 NBA season.

a. If the rule change had no effect on scoring, what value would μ have? Is this the null or alternative hypothesis?

b. If the rule change had the desired effect on scoring, what would be true about the value of μ? Is this a null or alternate hypothesis?

c. Based on your answers to part a and b clearly sate $\mathbf{H_o}$ and $\mathbf{H_a}$ using the proper notation.

d. The following sample data are the number of points scored in 25 randomly selected NBA games played during December 10-12, 1999.

196	198	205	184	224	198	243	235	200
206	190	140	204	200	197	191	194	196
190	195	180	200	180	188	163		

Use technology to calculate the mean and standard deviation of the sample data. **Use appropriate symbols** to denote these values.

Mean:

Standard Deviation:

e. Comment of whether or not the conditions have been satisfied for the validity of the one-sample t-test?

f. Using the statistics found in part d, compute the value of the *t*-test statistic from the sample.

$$\boldsymbol{t} = \frac{\bar{x} - \mu}{\left(\frac{s}{\sqrt{n}}\right)}$$

g. Use technology report the **p-value** for this study. Use an α level of .05.

h. Interpret the **p-value** in the context of these data and hypotheses. Write a sentence or two summarizing your conclusion about whether the sample data provides evidence that the mean points per game in the 1999-2000 season is higher than in previous seasons. Include an explanation of the reasoning process by which your conclusion follows from the test result.