**3.2 The Quantile Test and Estimation of Xp**

1. The median number of part time employees at a fast food restaurant in a particular city was known to be 15 last year. A sample of 9 fast-food restaurants showed the following:

|  |  |
| --- | --- |
| part times | Restaurants |
| >15 | 7 |
| 15 | 1 |
| <15 | 1 |

Test at .05 level of significance to see whether the median number of part time employee at the fast food restaurant has not changed. **(n<=20)**

1. The upper quartile price of new homes in St. Louis Missouri is at most $ 130,000. In a sample of 62 new homes the following frequency was observed:

|  |  |
| --- | --- |
| Price | Homes |
| > $ 130,000 | 34 |
| < $ 130,000 | 26 |
| =$ 130,000 | 2 |

Test at .05 level of significance. **(n>20)**

**Actual Data**

3. (Example 1 on page 139) Entering college freshman have taken a particular high school achievement examination for many years, and the upper quartile is well established at a score of 193. A particular high school sends 15 of graduates to college, where they take the exam and get the following scores:

189 233 195 160 212 176 231 185 199 213 202 193 174 166 248

Test the above scores come from a population whose upper quartile is 193. At .05 level of significance. **(n<=20)**

4. The median annual income for college graduates with a B.S degree is $ 37,700. Sample of 50 graduates working in Chicago area are shown (in 1000), Excel file. Is *the* median annual income for the population of college graduates working in Chicago area more than $ 37,700? At 0 .05 level of significance. **(n>20).**

1. Find 95% CI for upper quartile of scores of entering college freshman in problem 3. **(n<=20)**
2. Find 95% CI for the median of the annual income for college graduates in problem 4. **(n>20)**