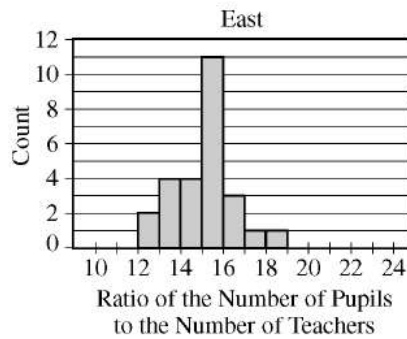
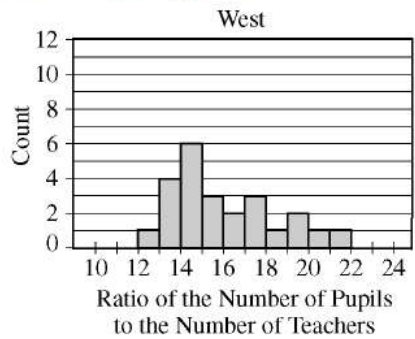


AP Stats

FRQ Practice #1

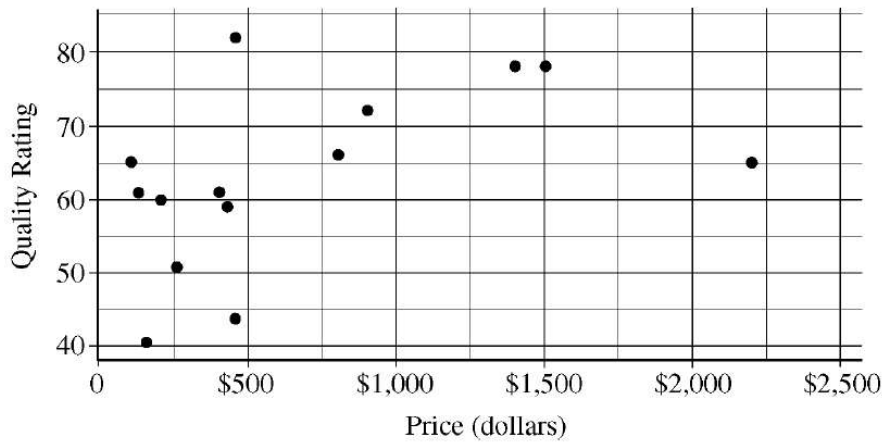
Due: Wednesday, January 23rd

Records are kept by each state in the United States on the number of pupils enrolled in public schools and the number of teachers employed by public schools for each school year. From these records, the ratio of the number of pupils to the number of teachers (P-T ratio) can be calculated for each state. The histograms below show the P-T ratio for every state during the 2001–2002 school year. The histogram on the left displays the ratios for the 24 states that are west of the Mississippi River, and the histogram on the right displays the ratios for the 26 states that are east of the Mississippi River.



- (a) Describe how you would use the histograms to estimate the median P-T ratio for each group (west and east) of states. Then use this procedure to estimate the median of the west group and the median of the east group.
- (b) Write a few sentences comparing the distributions of P-T ratios for states in the two groups (west and east) during the 2001–2002 school year.
- (c) Using your answers in parts (a) and (b), explain how you think the mean P-T ratio during the 2001–2002 school year will compare for the two groups (west and east).

The scatterplot below displays the price in dollars and quality rating for 14 different sewing machines.



- Describe the nature of the association between price and quality rating for the sewing machines.
- One of the 14 sewing machines substantially affects the appropriateness of using a linear regression model to predict quality rating based on price. Report the approximate price and quality rating of that machine and explain your choice.
- Chris is interested in buying one of the 14 sewing machines. He will consider buying only those machines for which there is no other machine that has both higher quality and lower price. On the scatterplot reproduced below, circle all data points corresponding to machines that Chris will consider buying.

