AP Statistics Exploratory data Analysis Numerical Summaries

1. **READING SCORES** A class of fourth graders takes a diagnostic reading test, and the scores are reported by reading level. The 5-number summaries for the 14 boys and 11 girls are shown:

Boys:	2.0	3.9	4.3	4.9	6.0
Girls:	2.8	3.8	4.5	5.2	5.9

a) Which group had the highest score?
b) Which group had the greatest range?
c) Which group had the greatest interquartile range?
d) Which group generally did better on the test? Explain.
e) If the mean reading level for the boys was 4.2 and for the girls was 4.6, what is the overall mean for the class?

2. **MATH SCORES** The national Center for Education Statistics reported 1999 average mathematics achievement scores for eighth graders in 38 nations. Singapore led the group, with an average score of 604, while South Africa had the lowest average of 275. The United States scored 502. The average scores for each nation are given below.

604	587	585	582	579	558	540	534	532	531	530	526
525	520	519	520	511	505	502	496	491	482	479	476
472	469	467	466	448	447	429	428	422	403	392	345
337	275										

a) Find the 5-number summary, the IQR, the mean, and the standard deviation (all called numerical summaries) of these national averages.

b) Write a brief summary of the performance of eighth graders worldwide. Be sure to comment on the performance of the United States.

3. **WAYNE GRETZKY** During his 20 seasons in the NHL, Wayne Gretzky scored 50% more points than anyone who ever played professional hockey. He accomplished this amazing feat while playing in 280 fewer games than Gordie Howe, the previous record holder. Here is the stemplot for the number of games he played during each season:

4	
4	5 8
5	
5	
6	4
6	
7	0 3 4 4
7	8 8 9 9
8	0 0 0 0 0 0 1 2 2

Games Played (4|5 = 45 games)

a) Would you use the median or the mean to describe the center of this distribution? Explain.
b) Find the median.
c) Without actually finding the mean, would you expect it to be higher or lower than the median? Why?
d) Find the 5-number summary.
e) Are the games 45 and 48 that he played in each of those two years outliers? Show your work.