

1. Joey's first fourteen quiz grades in a marking period were

86 84 91 75 78 80 74
87 76 96 82 90 98 93

- Use the formula to calculate the mean. (Show your work)
- Use a data table to calculate the standard deviation (Show me the data table)
- Suppose Joey has an unexcused absence for the fifteenth quiz and he receives a score of zero. Determine his final quiz average and the standard deviation using your calculator. What property of the mean and standard deviation does this situation illustrate? Write a sentence about the effect of the zero on Joey's quiz average that mentions this property.
- What kind of plot would best show Joey's distribution of grades? Assume an 8-point grading scale (A:93-100, B: 85-92, etc.) Make an appropriate plot, and be prepared to justify your choice.

2. An agility test given to fourth grade boys and girls asks them to jump from side to side across a set of parallel lines, counting the number of lines they can clear in 30 seconds. Create side-by-side box plots and compare the performance of boys and girls. (SOCS)

Boys: 22, 17, 18, 29, 22, 22, 23, 24, 23, 17, 21

Girls: 25, 20, 12, 19, 28, 24, 22, 21, 25, 26, 25, 16, 27, 22

3. A student designed an experiment to test the efficiency of various coffee containers by placing hot (180°F) liquid in each of four different container types 8 different times. After 30 minutes she measured the temperature again and recorded the difference in temperature. Because these are temperature *differences*, smaller differences mean that the liquid stayed hot—what we probably want in a coffee mug. What can we say about the effectiveness of these four mugs? Using the summary data, construct side-by-side box plots and compare the effectiveness of the mugs.

	Min	Q1	Median	Q3	Max	IQR
CUPPS	6°F	6	8.25	14.25	18.5	8.25
Nissan	0	1	2	4.5	7	3.50
SIGG	9	11.5	14.25	21.75	24.5	10.25
Starbucks	6	6.5	8.5	14.25	17.5	7.75

4. **Singers:** The frequency table shows the heights (in inches) of 130 members of a choir.

Height	Count	Height	Count
60	2	69	5
61	6	70	11
62	9	71	8
63	7	72	9
64	5	73	4
65	20	74	2
66	18	75	4
67	7	76	1
68	12		

- Find the five-number summary for these data
- Display these data with a boxplot
- Find the mean and standard deviation
- Display these data with a histogram
- Write a few sentences describing the distribution of heights

5. **Home runs:** In 1961 Roger Maris made baseball headlines by hitting 61 home runs, breaking a famous record held by Babe Ruth. Here are Maris's home run totals for his 10 seasons in the American League. Would you consider his record-setting year to be an outlier? Explain.

8, 13, 14, 16, 23, 26, 28, 33, 39, 61

6. **SAT scores:** Here are the summary statistics for Verbal SAT scores for a high school graduating class.

	n	Mean	Median	SD	Min	Max	Q1	Q3
Male	80	590	600	97.2	310	800	515	650
Female	82	602	625	102.0	360	770	530	680

- Create parallel boxplots comparing the scores of boys and girls as best you can from the information given.
- Write a brief report on these results. Be sure to use SOCS