

Name _____

Date _____ Pd. _____

Notes: Variation

Example 1 The number of wins for the baseball teams of the American League Central Division are shown at the right. Find the range of the number of wins.

Major League Final Standings, 2000	
Team	Wins
Chicago White Sox	95
Cleveland Indians	90
Detroit Tigers	79
Kansas City Royals	77
Minnesota Twins	69

Source: cbs.sportsline.com

Quartiles and Interquartile Range Three **quartiles** divide data into four equal parts. The **upper quartile** divides the top half into two equal parts. The **lower quartile** divides the bottom half into two equal parts. The **middle quartile** is the median of the data. The upper and lower quartile values are used to determine the **interquartile range**, another measure of variation

Example Find the lower quartile, the upper quartile, and the interquartile range for the data set 23, 23, 31, 31, 63, 63, 69, 71, 72, 82, 88, 160.

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Exit Card: Variation

Here are five test grades for four students in a mathematics class:

Student Grades

	Sally	Thomas	Uhura	Vince
Test 1	78	82	90	76
Test 2	100	92	70	78
Test 3	55	70	80	74
Test 4	80	80	80	80
Test 5	60	50	70	77

Which student's test scores shows the least variability?

F. Sally G. Thomas H. Uhura J. Vince

BCR

There are 40 employees at a company. The table below shows their annual salaries.

Income	Frequency
\$20,000	25
\$30,000	1
\$40,000	5
\$50,000	9

- Find the mean and median salaries for the workers in this company. Use mathematics to explain how you determined your answer. Use words, symbols, or both in your explanation.
- If you wanted to convince your employees that their salaries are too high, which measure, mean, or median, would you use? Use mathematics to justify your answer.

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Homework: Pages 734 – 736 (11, 15, 24 – 27, 29 – 31, 36, 37)

11. Find the range, median, lower quartile, upper quartile, and interquartile range of: 85, 77, 58, 69, 62, 73, 55, 82, 67, 77, 59, 92, 75

Range: _____ Median: _____ Lower Quartile: _____
 Upper Quartile: _____ Interquartile Range: _____.

15. Find the

Range:
 Median:
 Lower quartile:
 Upper quartile:
 Interquartile range:

Stem	Leaf
5	3 6 8
6	5 8
7	0 3 7 7 9
8	1 4 8 8 9
9	9 5 3 = 53

Calories for One Serving of Vegetables					
Vegetable	Calories	Vegetable	Calories	Vegetable	Calories
Asparagus	14	Carrots	28	Lettuce	9
Avocado	304	Cauliflower	10	Onion	60
Bell pepper	20	Celery	17	Potato	89
Broccoli	25	Corn	66	Spinach	9
Brussels sprouts	60	Green beans	30	Tomato	35
Cabbage	17	Jalapeno peppers	13	Zucchini	17

Source: *Vitality*

24. What is the range of the data?
25. What is the median of the data?
26. What are the lower quartile and the upper quartile of the data?
27. What is the interquartile range of the data?

The main span of cable-stayed bridges and of steel-arched bridges in the United States are given in the stem-and-leaf plot.

Cable-Stayed	Stem	Steel-Arch
6 4 3	6	
9 8 6 5 1 1	7	3 8 8
0	8	0 0 2 3 4
5 2	9	0 1 1 8 8 9
8 2 0 0	10	0 3 8
2	11	0 0
8 2 0	12	0 6
5 2 0	13	
9 0	14	
	15	
3	16	5
3 6 = 630 feet	17	0 7 3 = 730 feet

Source: *The World Almanac*

29. Find the ranges for each type of bridge.

30. Find the quartiles for each type of bridge.

31. Find the interquartile ranges for each type of bridge.

36. What is the range of the following set of data?
53, 57, 62, 48, 45, 65, 40, 42, 55

A 11

B 25

C 53

D 65

37. What is the median of the following set of data?
7, 8, 14, 3, 2, 1, 24, 18, 9, 15

A 8.5

B 10.1

C 11.5

D 23