

Name: KEY

Statistic Notes Day 1: Mean, Median, Mode, Range and Box and Whisker Plots

Mean - AVERAGE

Add all the NUMBER and DIVIDE by the TOTAL of elements in the set.

Example A: Find the mean of 15, 17, 12, 19, 14

$$\frac{15+17+12+19+14}{5} = \text{MEAN } 15.4$$

Example B: Cory has received the following grades this term: 75, 87, 90, 88, 79. If he wishes to earn an 85 average on his tests, what must he score on his (sixth test)?

MEAN = 85

$$85 = \frac{75+87+90+88+79+X}{6}$$

$$510 = 419 + X$$

$$X = 91$$

Example C: Andy has grades of 84, 65, 92, 88, 82, and 76 on six History tests. What grade must he get on the next test to have an average of exactly 80 on the seven tests?

$$80 = \frac{84+65+92+88+82+76+X}{7}$$

$$560 = 487 + X$$

$$X = 73$$

HE MUST GET A 73

Median

The Middle of the data **when the data is ordered** from least to greatest.

* IF THERE ARE TWO VALUES IN THE MIDDLE, WE TAKE THE AVERAGE

Example A: Find the median of 19, 29, 36, 15, and 36

Step 1: Rewrite the numbers in order

15, 19, 29, 36, 36

Step 2: Find the median:

29

Example B: Find the median of 67, 28, 92, 37, 81, 75

Step 1: Rewrite the numbers in order:

28, 37, 67, 75, 81, 92

Step 2: Find the median:

$$\frac{67+75}{2} = 71$$

Mode

The number that OCCURS most OFTEN.

> There can be NO mode, MULTIPLE modes, or ONE mode.

Examples: Find the mode of each set of data.

A:

Stem	Leaf
1	5
2	1, 1, 1, 3, 5, 6, 8

MODE 21

B: 4, 8, 15, 21, 23

NO MODE

C: 12, 15, 18, 26, 15, 9, 12, 27

12 AND 15

Range

The LARGEST number minus the SMALLEST number.

Examples: Find the range of each set of data.

A:

Stem	Leaf
1	5
2	1, 1, 1, 3, 5, 6, 8

28 - 15 = 13

B: 4, 8, 15, 21, 23

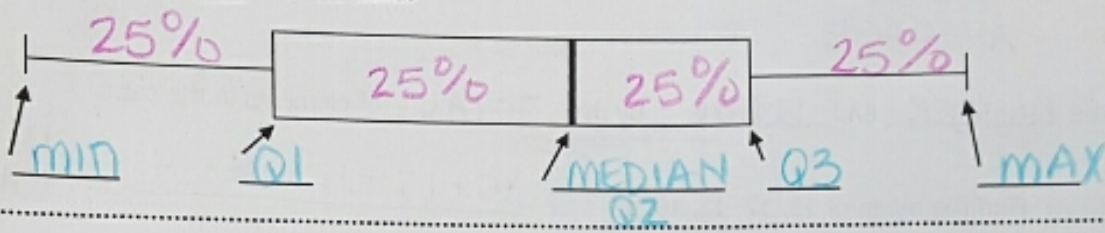
$$23 - 4 = 19$$

C: 12, 15, 18, 26, 15, 9, 12, 27

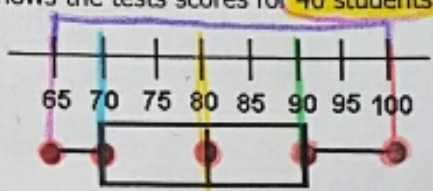
$$27 - 9 = 18$$

Box and Whisker Graph

A box and whisker graph is based on the QUARTERS of the data. It divides the data into 4 sections with each section representing 25 % of the data.



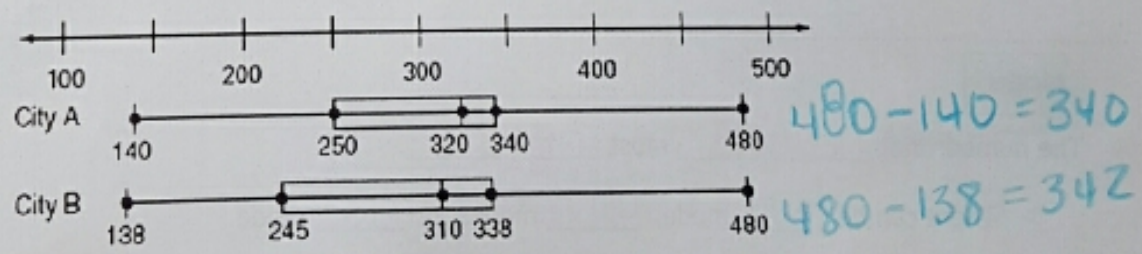
Example A: The box and whisker plot shows the tests scores for 40 students in an Algebra class.



Find the following values:	Questions:
Median: <u>80</u>	1) <u>What percentage of students scored above an 80%?</u> <u>50%</u>
1 st Quartile (Q1): <u>70</u>	2) <u>What percentage of students scored below a 90%?</u> <u>75%</u>
3 rd Quartile (Q3): <u>90</u>	3) <u>What percentage of students scored between a 70% and 90%?</u> <u>50%</u>
Minimum Value: <u>65</u>	4) <u>How many students scored less than an 80%?</u> <u>50% of 40 = 20</u>
Maximum Value: <u>100</u>	5) <u>How many students scored more than a 70%?</u> <u>75% of 40 = 30</u>
Range: <u>100 - 65 = 35</u>	6) <u>How many students scored more than a 90%?</u> <u>25% of 40 = 10</u>

Example B: Use the box and whisker plot below to tell what the range of each city is. Which city has a higher range?

city B has a higher range



Example C: The box and whisker plot show the heights, in centimeters, of high school seniors as compared with their heights as a freshman. Using the median as the measure, which is closest to the difference in heights between the freshman and senior years?

