Int 1 | **Notes 10-1 Mean, Median, Mode** | **Unit 10**

VOCABULARY

Mean:
the AVERAGE of all the data points (#'s)

How do you calculate it?
Add up all the #'s then divide by How many #'s there are

Median:
the middle number in a list of #'s

How do you find it?
- order from LEAST to GREATEST
- Cross off from BOTH ends & find the middle!

Mode:
the # that shows up the most
- can be 1 or more or NONE!

How do you find it?
- What # shows up the most?

Ex. 1: How many pairs of shoes do you own? * survey the class

~~4~~	~~18~~	~~19~~	~~6~~	~~14~~
53	~~2~~	~~3~~	~~20~~	~~10~~
~~20~~	30	~~1~~	~~9~~	~~9~~

* ALWAYS put #'s in order first!

1, 2, 3, 4, 6, 9, 9, 10, 14, 18, 19, 20, 20, 30, 53

What is the mean?
total: 218
# of #'s = 15
mean = $\frac{218}{15} = \boxed{14.5\overline{3}}$ or 14.53

* round to hundredths if necessary

What is the median?
10

What is the mode?
9 & 20

VOCABULARY

Minimum (Min): Lowest # in our data set

1st Quartile (Lower): the median/middle # of the LOWER Half of the data

Maximum (Max): HIGHEST # in our data set

3rd Quartile (Upper): the median/ middle # of the UPPER half of the data

Range: Max − Min. How spread out is the data?

Interquartile range: 3rd Q − 1st Q.

Int 1 | **Notes 10-1: Mean, Median, Mode** | **Unit 10**

Ex. 2 Use the data below to answer the questions.

~~5.2~~, ~~6.3~~, ~~4.7~~, ~~5.8~~, ~~6.3~~, ~~5~~, ~~4.2~~, ~~4.9~~, ~~5.2~~

4.2, 4.7, 4.9, 5, 5.2, 5.2, 5.8, 6.3, 6.3

4.8 | 6.05

Mean = 5.28 — = ◯

Median = 5.2

Mode = 5.2 & 6.3

Min: 4.2

Max: 6.3

Range = 2.1

1st quartile (Lower) = 4.8 ← $\frac{4.7+4.9}{2}$

3rd quartile (Upper) = 6.05 ← $\frac{5.8+6.3}{2}$

Interquartile Range = 1.25

* How do we find 1st Q & 3rd Q if it's not in the list?
  - ↳ Think # line & find middle (easy to see)
  - ↳ Add together & ÷ by 2.
* Just like with MEAN, make sure to a) use ( ) b) ADD up. Hit enter then ÷

*Tip: write #'s underneath original list. Helps you ensure you have them all! & cross off as you go!

← (2) Those don't have to be answered in order.

Ex. 3 Find the range, median, 1st (lower) and 3rd (upper) quartiles, and the interquartile range for the set of data.

Speeds taken from vehicles on a country road:

~~35~~, ~~48~~, ~~43~~, ~~39~~, ~~47~~, ~~33~~, ~~53~~, ~~54~~, 72, ~~58~~, ~~54~~, ~~59~~, ~~40~~, 74

~~33~~, ~~35~~, ~~39~~, 40, ~~43~~, ~~47~~, ~~48~~, ~~53~~, ~~54~~, ~~54~~, ~~58~~, ~~59~~, ~~72~~, ~~74~~

3 #'s | 1 Q | 3 #'s | 50.5

- **Find the range.** 41
- **Find the median (Q2).** 50.5 ← $\frac{48+53}{2}$
- **Find the 1st (lower) quartile.** 40
- **Find the 3rd (upper) quartile.** 58
- **Find the interquartile range.** 18

Ex. 4 The following are test scores from a math class.

75, 78, 80, 82, 82, 83, 84, 84, 87, 88, 91, 91, 95, 97

7 #'s | 84 median! | 7 #'s

Find the median test score: 84

Find the mean test score: $\frac{1197}{14} = 85.5$

First make predictions?

If a kid was absent and then comes and takes the test and scores a 20…

a) How does this score affect the mean?

20, 75, 78, 80, 82, 82, 83, 84, 84, 84, 87, 88, 91, 91, 95, 97

(84) | 8 #'s

81.13 -

b) How does this score affect the median?

(84) —

c) Talk about → why did one change & the other didn't?

Ex. 5 Use the data below to answer the questions.

Put in order first!

8, 15, 18, 23, 6, 0, 11, 15, 12, 20

0, 6, (8), 11, 12, 15, 15, 18, 20, 23

$\frac{12+15}{2} =$

- **Minimum:** 0 **Maximum:** 23
- **Find the range.** 23
- **Find the median (Q2).** 13.5
- **Find the 1st (lower) quartile.** 8
- **Find the 3rd (upper) quartile.** 18
- **Find the interquartile range.** 10