QUARTILES

Quartiles divide ORDERED data into 4 EQUAL quarters...

There are 3 QUARTILES:

Q^1 (25%) is the lowest quartile

Q^2 (50%) is the MEDIAN

Q^3 (75%) is the highest quartile

HOW TO SEPERATE DATA INTO QUARTILE:

1) Find the median of the data:

ex: 10 10 12 14 15 17 18 18 20 ..... so $\frac{9\# +1}{2} = 5^{th}$ #

lower 1/2 upper 1/2

Q^2 AKA the Media

2) On the left find the middle of those #'s...on the right find the middle #

ex: 10 10 12 14 so $\frac{4\# +1}{2}$ = 2.5 #.. 17 18 18 20

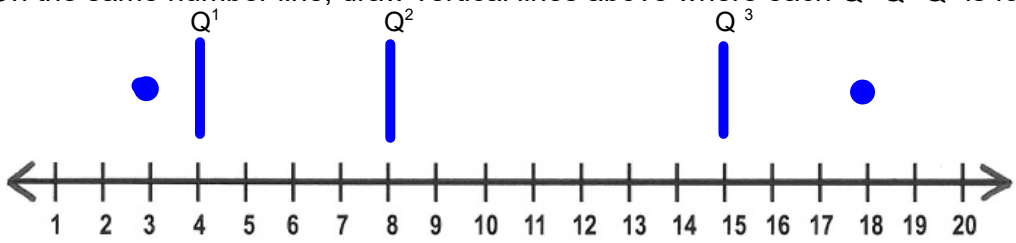
Q^1= 11 so an average of the 2nd and 3rd # Q^3= 18

How to draw a box- whiskers plot

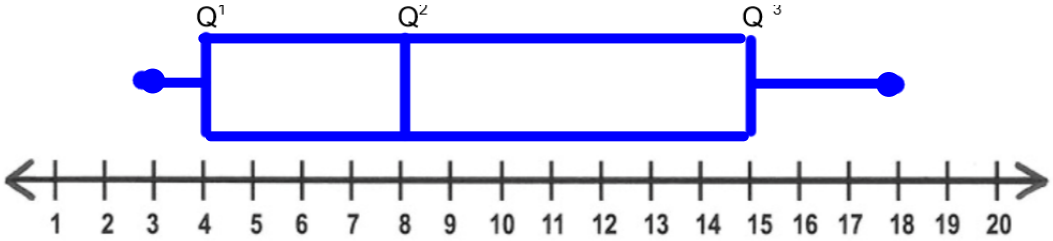
1) Get the Q^1 Q^2 Q^3 ,the minimum and maximum of your data.

2) On a number line, place dots of the min/ max floating above the number line

3) On the same number line, draw vertical lines above where each Q^1 Q^2 Q^3 is found



4) Connect them!

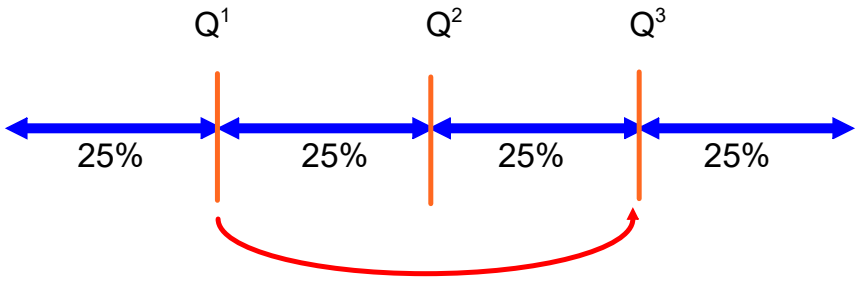


BOX AND WHISKERS

Things to know:

- wide spaces mean # are far apart (less concentrated)

-narrow spaces mean # are close together (very concentrated)



50% of the data is between Q1 and Q3

You cannot know the mean, mode or the original number of data from a box and whiskers alone

HOMOGENEOUS = alike

HETEROGENEOUS = different

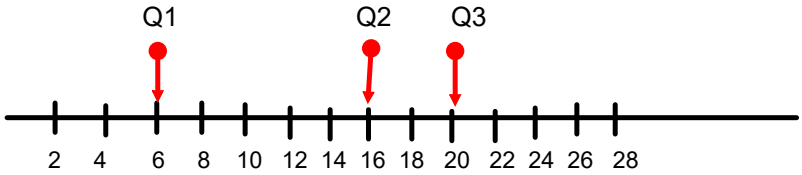
MEASURES OF DISPERSIONS

DEF: Range of data

VARIATION INTERVAL: A square bracket which shows the lowest # and the highest #.

EX: 7,10,18,20,30 VARIATION INTV' $[7, 30]$

INTERQUARTILE INTERVAL: A square bracket which shows the value of Q1 and Q3.



INTERQUARTILE INTV' $[6, 20]$

INTERQUARTILE RANGE: The difference between Q3 and Q1

EX: Q3 - Q1

20 - 6 = 10

of DATA IN EACH QUARTER

To know quickly how many #'s are in each quarter AND

if the Quartiles are fake OR real use this:

$$\frac{\text{TOTAL \# OF DATA}}{4} = \text{\# OF DATA IN EACH QUARTER}$$

4 types of answers:

You get a whole #.....Q1 / Q2 / Q3 are all FAKE!

You get a decimal of .25.....Q1 and Q3 are FAKE, but Q2 is real

You get a decimal of .5.....Q1 and Q3 are real, but Q2 is FAKE

You get a decimal of .75.....Q1 / Q2 / Q3 are all real.