Enrichment Topic I

(Statistics)

Consider the following set of test grades:

{ 92, 99, 85, 95, 79, 64, 79, 91, 56, 82, 81 }

Now arrange them in ascending order:

{ 56, 64, 79, 79, 81, 82, 85, 91, 92, 95, 99 }

The **range** is the difference between the highest and lowest numbers:

$99 - 56 = \boxed{43}$

The **mean** is the average:

$$\frac{56 + 64 + \ldots + 95 + 99}{11} = \boxed{82.0\overline{9}}$$

The **mode** is the value that occurs most frequently:
(It is possible to have more than one mode or to have none.)

79 occurs twice

The **median** is the number in the middle of the **ordered** list:
(If there are two numbers in the middle, average them.)

82

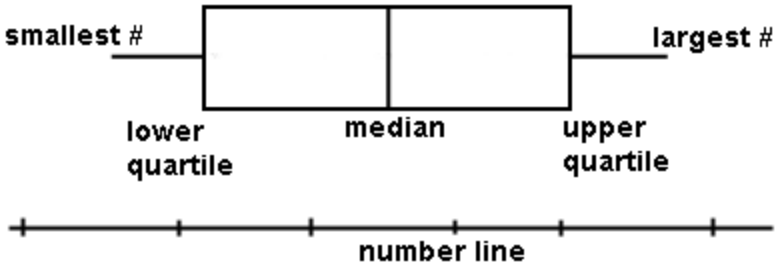
The **lower quartile** is the median of the lower half of the numbers:

79

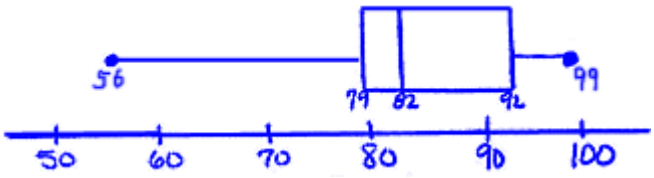
The **upper quartile** is the median of the upper half of the numbers:
(When there are an odd number of data points, the middle value is not used when finding either quartile.)

92

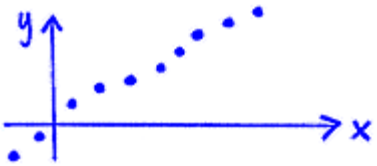
A **box and whisker plot** is often used to display some of the statistics for a set of data:



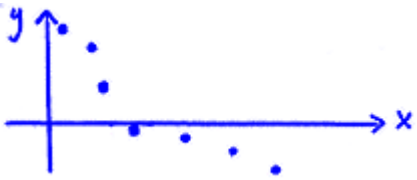
Example: Make a box and whisker plot for the data on the preceding page:



Positive correlation between variables is when a line of best-fit has a **positive slope**.



Negative correlation between variables is when a line of best-fit has a **negative slope**.



It is **possible to have neither** negative nor positive correlation.

See **Calculator Appendix P** and an associated video for how to produce statistics on a graphing calculator.

Assignment:

Problems 1-7 refer to the data from the weigh-in at a weight watchers club:
{ 95, 306, 298, 250, 200, 202, 502, 601, 332, 212 }

1. What is the mean?	2. What is the mode?
3. What is the median?	4. What is the range?
5. What is the upper quartile?	6. What is the lower quartile?

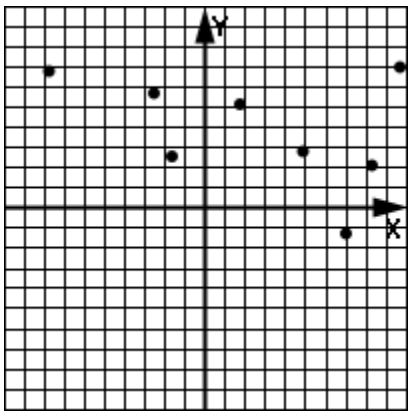
7. Make a box and whisker plot for this data.

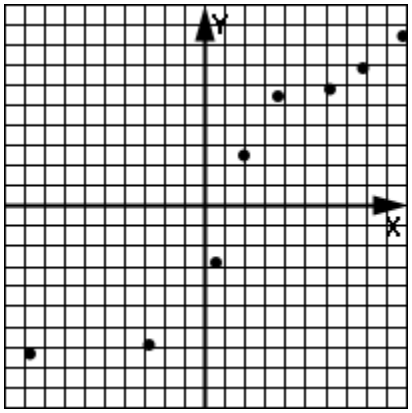
Problems 8-14 refer to weights of the San Pedro Armadillo's JV football team:
{ 130, 195, 218, 180, 160, 180, 401, 145, 121, 192, 146}

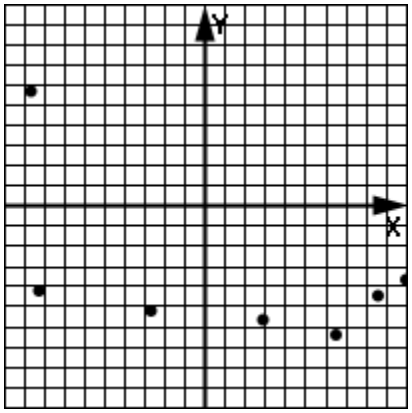
8. What is the mean?	9. What is the mode?
10. What is the median?	11. What is the range?
12. What is the upper quartile?	13. What is the lower quartile?

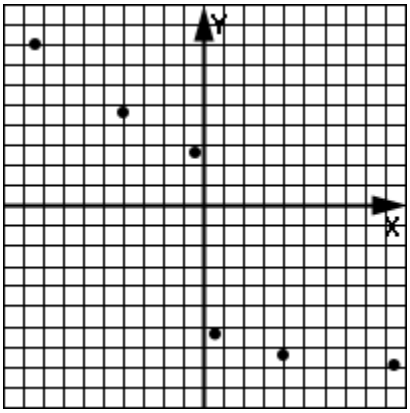
14. Make a box and whisker plot for this data.

In problems 15-18 decide if there is a negative or positive correlation (or none) between the variables.

15. 

16. 

17. 

18. 

*19. Make a scatter-plot of the data presented in the table and decide what type of correlation is represented:

X	Y
8	9
5	4
-1	-3
-4	-5
-5	-7.5
-9	-8