

8.5 Cumulative Frequency

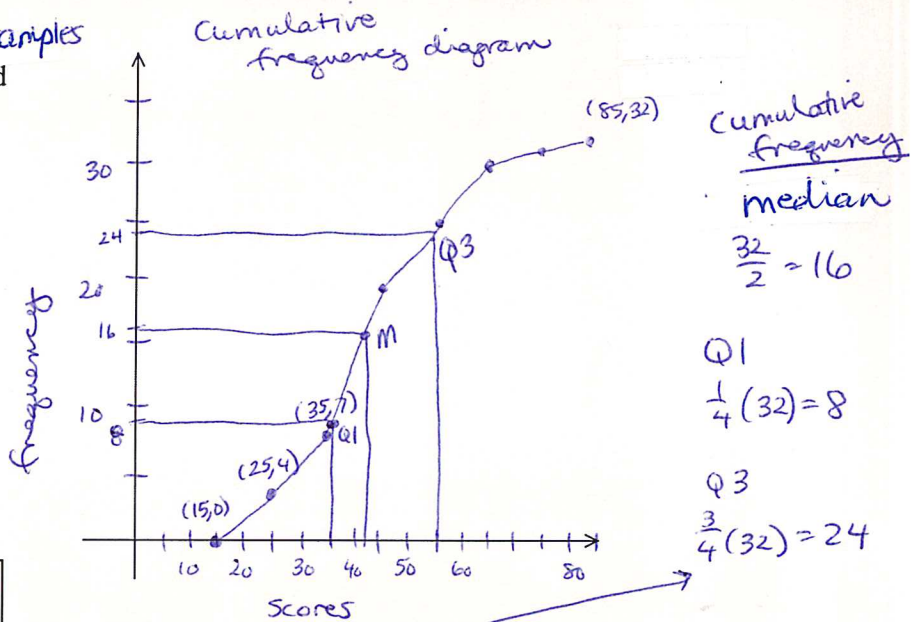
To calculate the cumulative frequency add up the frequencies of the data values as you go along.

A cumulative frequency diagram (Cumulative frequency graph) or **ogive** is most useful when trying to calculate the median, quartiles and percentiles of a large set of grouped or continuous data.

Using the NFL data from the previous *examples*
 Draw a cumulative frequency diagram and median and interquartile range.

find

Scores (s)	f	Cumulative Frequency
$15 \leq s < 25$	4	4
$25 \leq s < 35$	3	7
$35 \leq s < 45$	13	20
$45 \leq s < 55$	6	26
$55 \leq s < 65$	3	29
$65 \leq s < 75$	2	31
$75 \leq s < 85$	1	32



Make sure to label your graph properly.

Exercise 8G

8.6 Variance and Standard Deviation

The range and interquartile range are good measures of spread but each one is calculated from only two data values.

The variance combines all the values in a data set to produce a measure of spread.
 - It is the arithmetic mean of the squared difference between each value and the mean value.

If you want to know why there are advantages to squaring the above difference read page 276 of your book.

** not really used in application*

Because the differences are squared, the units of variance are not the same as the units of the data.

The standard deviation is the square root of the variance and has the same units as the data.

find Q1, mid, Q3 and draw lines coming from 1/4 location on the frequency line to the graph + then drop it down to the x-axis to approximate the values of median & IQR
 median = 42.5 pts IQR = 55 - 35 = 20 pts