

How Do We Construct A Cumulative Frequency Histogram?

The histogram that displays accumulated frequencies from the intervals in the group data is called a Cumulative frequency histogram.

Method of Constructing A Cumulative Frequency Histogram

Use the same procedure as you did for the frequency histogram with the exception being that the bar graph for each interval must correspond to the sum of that interval and all the intervals that precede it.

Example:

Using the same example from yesterday's lesson, construct a cumulative frequency histogram:

On the last math test, the scores were as follows:

89, 75, 63, 98, 96, 60, 78, 80, 67, 95, 55, 77, 69, 72, 70, 92

Interval	Frequency
91-100	4
81-90	1
71-80	5
61-70	4
51-60	+ 2

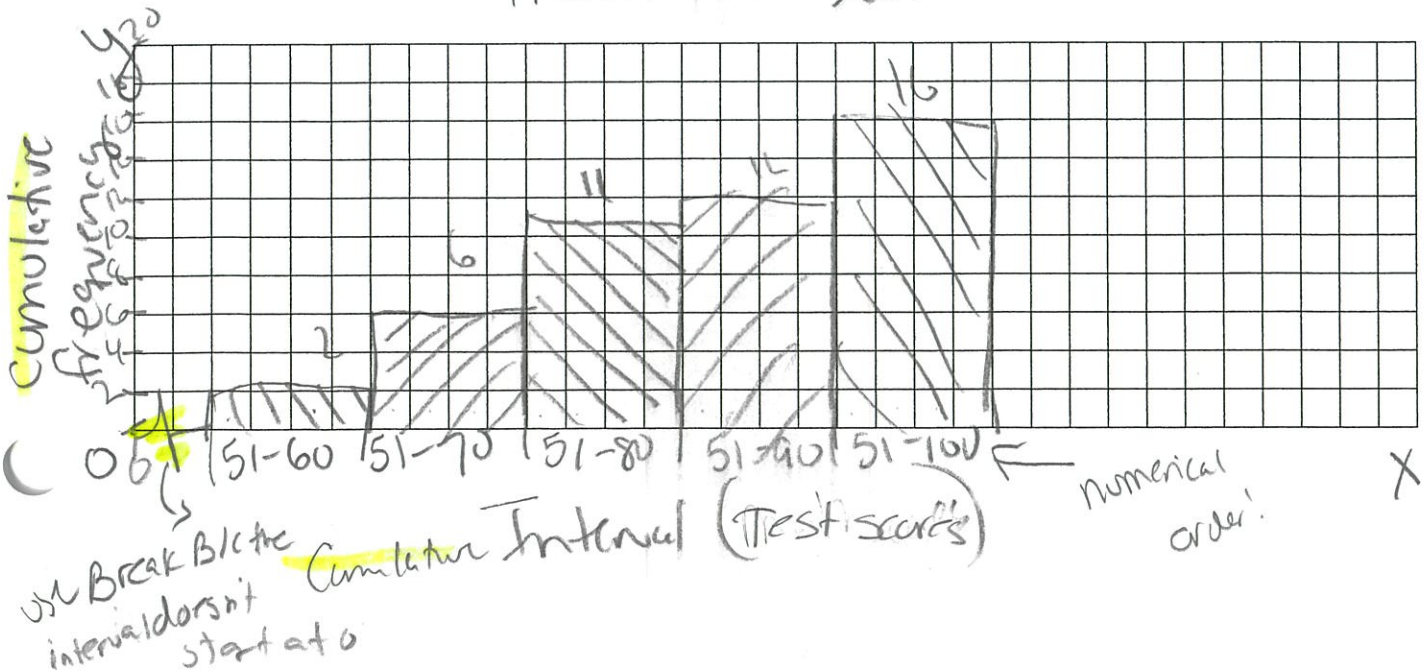
TF = 16

Math test scores

Interval	Cumulative Frequency
51-100	16
51-90	12
51-80	11
51-70	6
51-60	2

Match

comes B-y-t.



A score or a measure that tells us what percent of the total population, or the total frequency, scored at or below that measure is called a Percentile.

First or Lower Quartile - 25th Percentile (25%)

Second Quartile or Median - 50th Percentile (50%)

Third or Upper Quartile - 75th Percentile (75%)

Example 1:

Using the histogram just constructed answer the following: *use regular frequency*

(a) In which interval does the lower quartile lie? 61-70 $25\% \cdot 16 = 4$

(b) In which interval does the median lie? 71-80 $50\% \cdot 16 = 8$

(c) In which interval does the upper quartile lie? 81-90 $75\% \cdot 16 = 12$

Example 2

Interval	Frequency
25-29	3
20-24	1
15-19	3
10-14	9
5-9	4

Find:

T.F = 20

(a) The total frequency 20

(b) The interval in which the lower quartile lies 10-14

(c) The interval in which the median quartile lies 10-14

(d) The interval in which the upper quartile lies 15-19

(e) The interval in which the 83% score lies 20-24

← Denominator

steps: multiply the % by the total frequency

Make sure to start counting from the lowest interval

$25\% \cdot 20 = 5$

$50\% \cdot 20 = 10$

$75\% \cdot 20 = 15$

$83\% \cdot 20 = 16.6 \rightarrow 17$ (Rounded)