

Cumulative Frequency Table – Grouped Data

When we work with **grouped data** we plot the **endpoint** of each interval.

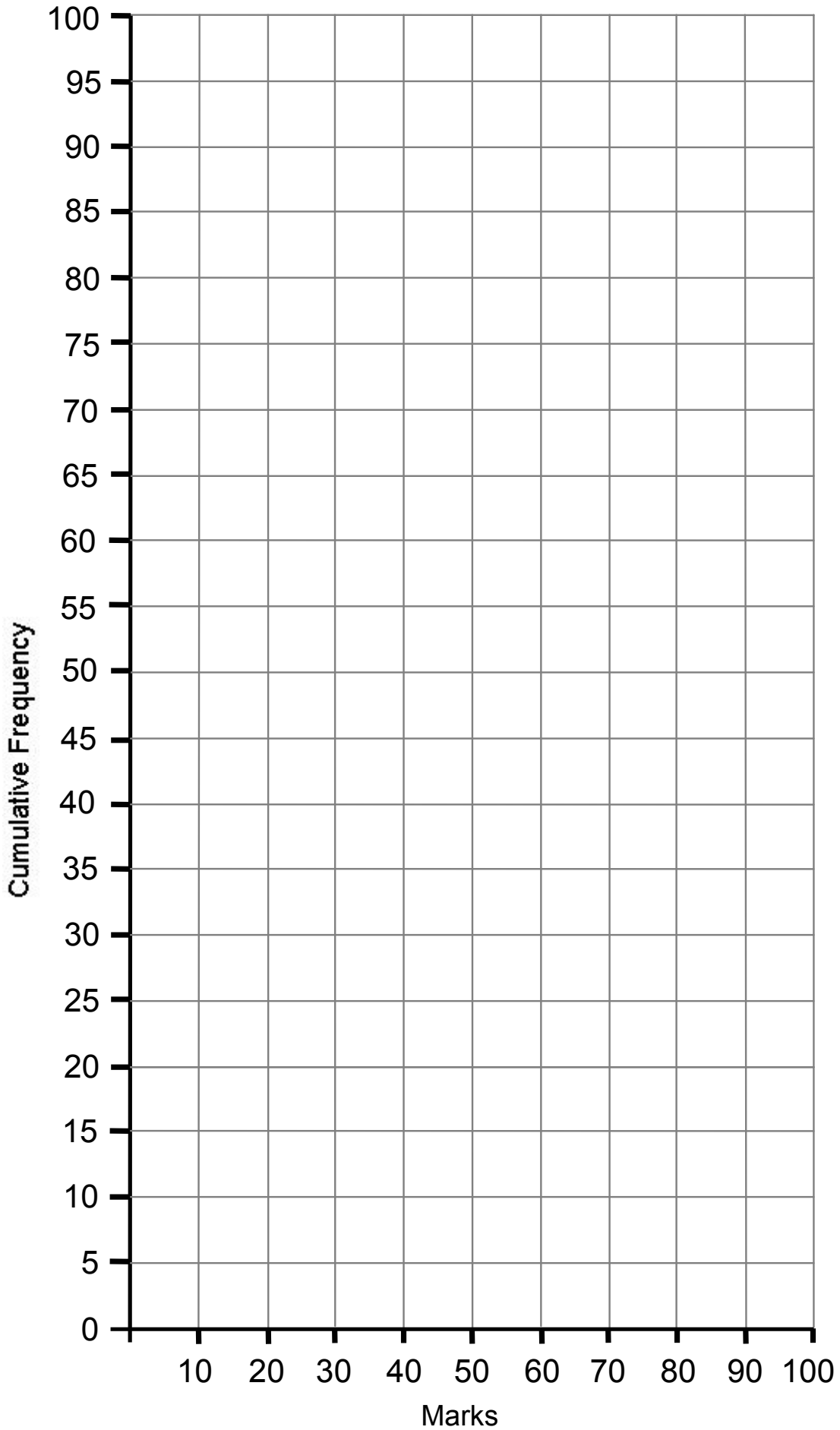
Example

Consider the results of 100 students with their marks grouped as follows. Complete the last column and plot the points on the grid.

Marks	Freq	Cumulative Frequency	Plot Points
1 – 10	1	1	
11 – 20	2	3	
21 – 30	3	6	
31 – 40	6	12	
41 – 50	10	22	
51 – 60	15	37	
61 – 70	32	69	
71 – 80	23	92	
81 – 90	7	99	
91 - 100	1	100	

Cumulative Frequency Graph for Grouped Data

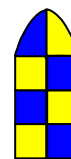
Test Results



More about the Cumulative Frequency Polygon

The S-shaped curve is also called an ogive.

The pointed window used in medieval architecture are also called an ogive.



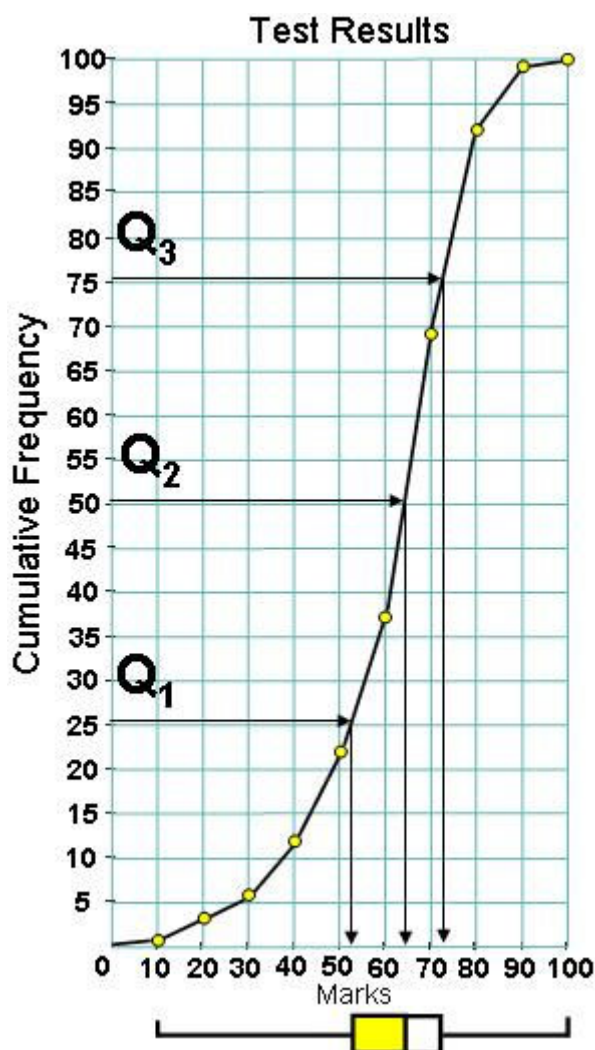
The graph can be used to find an estimate of the median, as well as Q_1 and Q_3

Since there are 100 students the median will occur between the 50th and 51st student.

Recall that the median is: $\frac{1}{2}(n+1)$
 =

The lower quartile Q_1 will occur between the 25th and the 26th student.

The upper quartile Q_3 will occur between the 75th and the 76th student.



This tells us that 25% scored or lower.

50% scored or lower.

75% scored or lower.



Using STAT mode to Find \bar{x} and σ

We'll input 5 values 3, 5, 6, 7, 9 and find the above measures

1. Press **SETUP** then **2:STAT**
2. Next press **1** to enter the STAT editor screen
3. Press: **3 =**
4. Press: **5 =**
5. Press: **6 =**
6. Press: **7 =**
7. Press: **9 =**
8. Press: **AC**
9. Press: **Shift** then **STAT**
10. Press: **5:Var** followed by **2: \bar{x}**
11. Press: **=**
12. Press: **Shift** then **STAT** followed by **5:var**
13. Press: **3: σ_n**
14. Press: **=**

