

Warm-up: Measures of Central Tendency MEL4E

1) Consider the following class of 10 students, with the indicated marks:

78	74	78	68	87	74	90	45	62	70
45	62	68	70	74	74	78	78	87	90

a) Calculate the mean, median, and mode in the space below. Show your work. Remember to sort the data first.

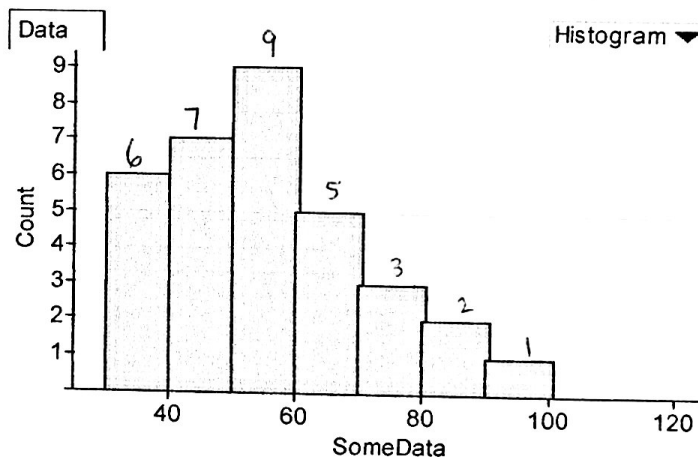
$$\text{mean} = \frac{\text{Total}}{10} = \frac{726}{10} = 72.6$$

$$\text{Median} = \frac{74 + 74}{2} = 74$$

Mean = 72.6	Median = 74	Mode = 74 & 78 (twice)
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Example: The given frequency table yields the histogram on the right.

Interval	Frequency
30 - 39	6
40 - 49	7
50 - 59	9
60 - 69	5
70 - 79	3
80 - 89	2
90 - 100	1



a) If this data represents class marks, how many students are in the class?

$$6 + 7 + 9 + 5 + 3 + 2 + 1 = 33 \text{ students}$$

b) Without knowing the original marks, follow along as we estimate the mean mark.

$$\begin{aligned}
 \text{Mean Estimate} &= 6 \times 35 + 7 \times 45 + 9 \times 55 + 5 \times 65 + 3 \times 75 + 2 \times 85 + 1 \times 95 \\
 &= 210 + 315 + 495 + 325 + 225 + 170 + 95 \\
 &= 1835 \div 33 \\
 &= 55.6
 \end{aligned}$$

* Assume 6 people with a mode of 35, etc...

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c) Without knowing the original marks, follow along as we estimate the median mark.

Who is the middle mark?

$33 \div 2 = 16.5 \rightarrow$ The 17th student has the median mark.

The 17th student is in the 50-59 interval.

The median is about 55.