<https://78bbm3rv7ks4b6i8j3cuklc1-wpengine.netdna-ssl.com/wp-content/uploads/2015/08/1-var-stats.pdf>

**Question #17 The Original Data Table** has 9 data points.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 11 | 12 | 10 | **9** | 7 | 5 | 3 | 9 |

Mean: 74 / 9 = **8.22 For MEDIAN, The DATA Must be in order:**

 **3, 5, 7, 8, 9, 9, 10, 11, 12**

**There are ‘9’ Data points so the MIDDLE value is in Position 5. (9+1)/2 = 10/2 =position 5**

**Which also happens to have the VALUE of 9 (for this problem).**

*The question asks*:

 **If a 10th value of (45) is added to the data, THEN WHAT IS TRUE!**

**ANSWER: ( c )**

When dealing with MEDIAN (by hand), The Data Value Points need to be in order.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 5 | 7 | 8 | 9 | 9 | 10 | 11 | 12 | 45 |

Median is: **9**  Mean: 119 / 10 = **11.9**

MEDIAN Means MIDDLE

The Median is also Q2. (Quartile 2)

Q1 is the low 25% Value Q2 = Middle of 50% Value Q3 is the High 75% Value

When you add a data value higher than the ‘Mean”, the mean increases. (So: D is INCORRECT)

If there is an EVEN number of data values, you need to AVERAGE the two adjacent points.

**BECAUSE OF THE DATA THAT IS GIVEN WITH TWO 9’s in the Middle, The MEDIAN stays the same. If there were other values, the median could have changed!**

**On the TI-84: (Steps may be different depending on the calculator you use!)**

[STAT]

{1: Edit} <enter>

Type in the original data values in the: **L1** (Column). Use the <DOWN ARROW>

[STAT] {CALC}

{1: Var Stats}

It uses the (L1) List as the default. Or press [2nd] and the enter the number 1 thru 6.

{**Calculate**}

$\overline{X}=MEAN=8.22 Σ=SUM=74$ Sx = Standard Deviation

Min = 3 Q1 = 6 Q2 = Median = 9 Q3 = 10.5 Max = 12

 (5 + 7) / 2 (9 + 9) / 2 (10 + 11) / 2

[STAT] {1: Edit} Edit the data to add the new Data Point Value: (45)

[STAT] {CALC}

{1: Var Stats}

$\overline{X}=MEAN=11.9 Σ=SUM=119$ Sx = 11.9

Min = 3 Q1 = 7 Q2 = Median = 9 Q3 = 11 Max = 45