Interpretation (for QD): Comparing the results obtained from the two sets of values, we can say that the values in set B are less dispersed around the median as compared to the values in set A.

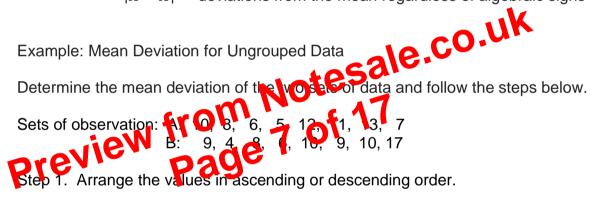
# 3. The Mean Deviation or the Average Deviation

$$MD = rac{\Sigma |X - \overline{X}|}{n}$$

Formula 15

where: MD = mean deviation

- X = individual value
- $\overline{X}$  = mean of data
- n = total number of items or observations
- $|X \overline{X}|$  = deviations from the mean regardless of algebraic signs

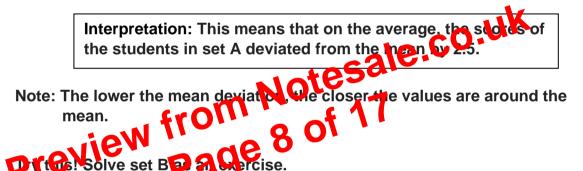


- Step 2. Find the sum of the values.
- Step 3. Compute the value of the mean.
- Step 4. Find the value of the deviation of each score from the mean.
- Step 5. Find the **absolute value** of each deviation obtained in Step 4.
- Step 6. Find the sum of the absolute values in Step 5.
- Step 7. Substitute the values in the formula and solve.

X	$X - \overline{X}$	$ X - \overline{X} $
( <mark>Step 1</mark> )	( <mark>Step 4</mark> )	( <mark>Step 5</mark> )
5	5 - <mark>9</mark> = <del>-</del> 4	4
6	6 - <mark>9</mark> = -3	3
7	7 - <mark>9</mark> = -2	2
8	8 - <mark>9</mark> = -1	1
10	10 - <mark>9</mark> = 1	1
11	11 - <mark>9</mark> = 2	2
12	12 - <mark>9</mark> = 3	3
13	13 - <mark>9</mark> = 4	4
$\Sigma X = 72$		$\Sigma X-\bar{X} =\frac{20}{20}$
( <mark>Step 2</mark> )		( <mark>Step 6</mark> )

(Step 3) 
$$\overline{X} = \frac{\Sigma X}{n} \frac{10+8+6+5+12+11+13+7}{8} = \frac{72}{8} = 9$$

(Step 7) 
$$MD = \frac{\Sigma|X-\overline{X}|}{n} = \frac{20}{8} = 2.5$$



### 4. The Variance

### By Deviation Method (Long Method):

For Variance of a Sample Data:

$$\mathbf{S}^2 = \frac{\Sigma (X - \overline{X})^2}{n - 1}$$

Formula 16a

# By Raw Score Method (Short Method):

For Variance of a Sample Data:

$$\mathbf{S}^2 = \frac{\Sigma x^2 - \frac{(\Sigma x)^2}{n}}{n-1}$$

 $s^2 = variance$ 

where:

# Formula 16b

where:

x = individual value

 $\overline{X}$  = mean

- n = total number of items or observations observations
- x = individual value  $x^2$  = squared of individual value
- n = total number of items or