

The screenshot shows the Microsoft Word ribbon with the 'Home' tab selected. The ribbon includes tabs for File, Home, Insert, Design, Layout, References, Mailings, Review, View, ACROBAT, and Tell me what you want to do... There are also buttons for Sign in and Share. The 'Font' group on the Home tab shows 'Verdana' and '19'. The 'Paragraph' group shows alignment options like 'Normal' and 'No Spac...'. The 'Styles' group shows various styles like AaBbCcDc, AaBbCcDc, AaBbCcC, AaBbCcD, and AaB. On the far right, there are buttons for Find, Replace, Select, and Editing.

very _____ to the _____. (This is usually a good thing!)

A high standard deviation means that there is a _____ spread in the data numbers.

The range is the difference between the lowest number and the highest number in the set of data. To calculate the range;

$$\text{highest } \# - \text{lowest } \# = \text{range}$$

Example:



File Home Insert Design Layout References Mailings Review View ACROBAT Tell me what you want to do... Sign in Share

Font: Verdana 19pt. Paragraph: AaBbCcDc, Normal, No Spac..., Heading 1, Heading 2, Title.

Clipboard: Paste, Font, Paragraph, Styles, Editing.

Example:

Sam has 20 Rose Bushes.

The number of flowers on each bush is

9, 2, 5, 4, 12, 7, 8, 11, 9, 3, 7, 4, 12, 5, 4, 10, 9, 6, 9, 4

Work out the Standard Deviation.

Step 1. Work out the mean

Example: 9, 2, 5, 4, 12, 7, 8, 11, 9, 3, 7, 4, 12, 5, 4, 10, 9, 6, 9, 4

The mean is:

$$\begin{aligned} & \underline{9+2+5+4+12+7+8+11+9+3+7+4+12+5+4+10+9+6+9+4} \\ & = \frac{20}{20} \underline{\underline{140}} \\ & = \end{aligned}$$

Step 2. Then for each number: subtract the Mean and square the result

Example:

$$(9 - 7)^2 = (2)^2 = 4$$

$$(2 - 7)^2 = (-5)^2 = 25$$



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Font Paragraph Styles Editing

Example:

$$(9 - 7)^2 = (2)^2 = 4$$

$$(2 - 7)^2 = (-5)^2 = 25$$

$$(-5 - 7)^2 = (-12)^2 = 144$$

$$(144 - 7)^2 = (137)^2 = 9$$

$$(12 - 7)^2 = (5)^2 = 25$$

$$7 - 7^2 = (0)^2 = 0$$

$$8 - 7^2 = (1)^2 = 1$$

... etc...

And we get these results:

4, 25, 4, 9, 25, 0, 1, 16, 4, 16, 0, 9, 25, 4, 9, 9, 4, 1, 4, 9

Step 3. Then work out the mean of those squared differences (aka; the set of numbers you just found).

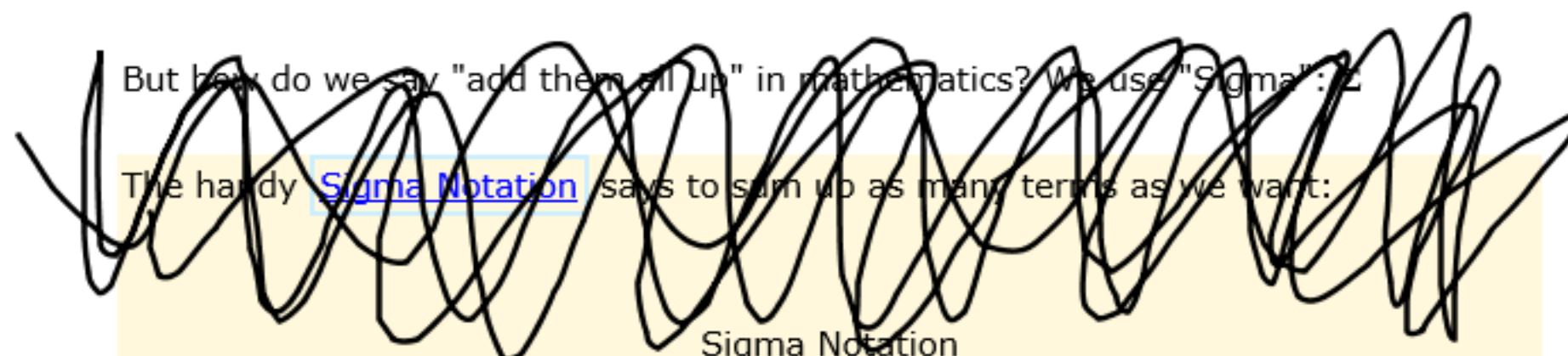


The screenshot shows the Microsoft Word ribbon at the top. The 'Home' tab is selected, highlighted in blue. Other tabs include File, Insert, Design, References, Mailings, Review, View, and ACROBAT. A search bar says 'Tell me what you want to do...'. On the far right, there are 'Sign in' and 'Share' buttons. Below the ribbon is the standard toolbar with font selection (Verdana, size 19), bold, italic, underline, and various styling options like alignment and lists.

Step 3. Then work out the mean of those squared differences (aka; the set of numbers you just found).

To work out the mean, **add up all the values** then **divide by how many**.

First add up all the values from the previous step.



We want to add up all the values from 1 to N, where N=20 in our case because there are 20 values:

Example:

$$= \frac{4+25+4+9+25+0+1+16+4+16+0+9+25+4+9+9+4+1+4+9}{20}$$

178
20
= 8.9

(Note: this value is called the "Variance")

Step 4. Take the square root of that:

File Home Insert Design Layout References Mailings Review View ACROBAT Tell me what you want to do... Sign in Share

Font: Verdana 11pt
Style: AaBbCcDc AaBbCcDc AaBbCcC AaBbCcD AaB

Clipboard Paste Find ab Replace Select Editing

(Note: this value is called the "Variance")

Step 4. Take the square root of that:

Example:

$$= \sqrt{8.9}$$

= 2.98 ... round to the nearest tenth

Therefore, the standard deviation is

3.0

Now calculate the range:

Range = highest number - lowest number

$$= 12 - 2$$
$$= 10$$

