

$$SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

With frequency:

$$\sigma = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}}$$

Application:

A class of 50 students took their MAPEH exam and their marks are illustrated below. Solve for the SD.

Marks	61-65	66-70	71-75	76-80	81-85
Number of Students	13	8	10	15	4

$$\sigma = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}}$$

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$$x - \bar{x}$$

$$x - \bar{x}^2$$

Let's apply the procedure:

X	$x - \bar{x}$	$x - \bar{x}^2$	$F(x - \bar{x})^2$
63	-8.9	79.21	1029.73
68	-3.9	15.21	121.68
73	1.1	1.21	12.1
78	6.1	37.21	558.15
83	11.1	123.21	492.84

$$SD = \sqrt{2229.35/50}$$