

The sum of deviation of the data from their arithmetic mean is zero

$$\sum f_i (x_i - \bar{x}) = 0 \text{ prove that for group data}$$

اذا

$$\sum f_i (x_i - \bar{x}) = 0 \text{ --- ①}$$

where:

$x_i =$ متغير , $\bar{x} =$ ثابت , $i =$ متغير

$$\sum f_i x_i - \bar{x} \sum f_i = 0 \text{ --- ②}$$

(* الثوابت تخرج خارج Sumation وخذها خارجا من الجمع)

$$\sum a x_i = a \sum x_i$$

$$\therefore \bar{x} = \frac{\sum f_i x_i}{\sum f_i} \text{ من تعريف Arithmetic وبالقسمة بالمعادلة ②}$$

$$\therefore \sum f_i x_i - \frac{\sum f_i x_i}{\sum f_i} * \sum f_i = 0$$

$$\therefore \sum f_i x_i - \sum f_i x_i = 0$$