

Revision Chapter Statistics

	Ungrouped Data	Grouped Data																													
		Without Class Interval	With Class Interval																												
M E A N	$\bar{x} = \frac{\sum x}{N}$ <p><u>Eg 1:</u> (a) Find the mean of the set of data below. 2, 4, 7, 10, 13, 16, and 18 [10] (b) A number of x is added to the set of data of (a) above, the mean becomes 9.5. Find the value of x. [6]</p>	$\bar{x} = \frac{\sum fx}{\sum f}$ <p>f = Frequency x = value of the data</p> <p><u>Eg 2:</u> The table shows the number of magazines read by students in a month.</p> <table border="1"> <tr> <td>Magazines</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>Frequency</td> <td>8</td> <td>11</td> <td>9</td> <td>7</td> <td>5</td> </tr> </table> <p>Find the mean of the data. [1.75]</p>	Magazines	0	1	2	3	4	Frequency	8	11	9	7	5	$\bar{x} = \frac{\sum fx}{\sum f}$ <p>f = Frequency x = Mid-point of the class</p> <p><u>Eg 3:</u> Table shows the length of the fish in a pond.</p> <table border="1"> <thead> <tr> <th>Length(cm)</th> <th>Number of fish</th> </tr> </thead> <tbody> <tr> <td>5 – 9</td> <td>8</td> </tr> <tr> <td>10 – 14</td> <td>17</td> </tr> <tr> <td>15 – 19</td> <td>20</td> </tr> <tr> <td>20 – 24</td> <td>20</td> </tr> <tr> <td>25 – 29</td> <td>18</td> </tr> <tr> <td>30 – 34</td> <td>11</td> </tr> <tr> <td>35 – 39</td> <td>6</td> </tr> </tbody> </table> <p>Calculate the mean of the length of the fish.</p>	Length(cm)	Number of fish	5 – 9	8	10 – 14	17	15 – 19	20	20 – 24	20	25 – 29	18	30 – 34	11	35 – 39	6
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M O D E	<p><u>Eg 4:</u> Find the mode of the sets of data below. (a) 15, 18, 21, 25, 20, 18 (b) 3, 6, 9, 11, 17 (c) 0, 1, 2, 7, 3, 2, 1, 1, 2, 1, 2</p>	<p><u>Eg 5:</u> Using Eg 2, find the mode of the data. [1]</p>	<p><u>Eg 6:</u> Using Eg 3. Find (a) Modal class (b) mode (must use histogram)</p>																												
M E D I A N	<p><u>Eg 7:(arrange data in ascending or descending order)</u> Using Eg 4 (a) dan (b), find the median. [19], [9]</p>	<p><u>Eg 8:</u> Using Eg 2, find the median. [2]</p>	$m = L + \left(\frac{\frac{N}{2} - F}{f_m} \right) c$ <p>L = lower boundary of the median class N = sum of frequencies F = cumulative frequency immediately before the median class f_m = frequency of the median class c = upper boundary – lower boundary</p> <p><u>Eg 9:(using formula or ogive)</u> Using Eg 3, find the median.</p>																												
R A N G E	$\text{Range} = \text{maximum value} - \text{minimum value}$ <p><u>Eg 10:</u> Using Eg 1, find the range of the set of data. [16]</p>	$\text{Range} = \text{maximum value} - \text{minimum value}$ <p><u>Eg 11:</u> Using Eg 2, find the range of the set of data. [4]</p>	$\text{Range} = \text{midpoint of the highest class} - \text{midpoint of the lowest class}$ <p><u>Eg 12:</u> Using Eg 3, find the range of the data.</p>																												

Interquartile Range = Third Quartile – First Quartile

I . Q . R	<p><u>Eg 13:</u> Find the IQR of each of the following data. (a) 9, 13, 15, 19, 22, 25, 29, 31, 35, 38, 41 [20] (b) 1, 2, 3, 4, 5, 6, 7, 8, 9. [5] (c) 2, 4, 6, 8, 10, 12, 14, 16. [8]</p>	<p><u>Eg 14:</u> Using Eg 2, find the IQR of the set of data.</p>	<div style="border: 1px solid black; padding: 10px; display: flex; justify-content: space-around;"> $Q_3 = L_3 + \left(\frac{\frac{3N}{4} - F}{f_m} \right) c$ $Q_1 = L_1 + \left(\frac{\frac{N}{4} - F}{f_m} \right) c$ </div> <p><u>Eg 15:</u> (using formula atau ogive) Using Eg 3, find the IQR of the data. [IQR. =12.5]</p>																												
V A R . @ S. D E V .	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> $\text{Variance, } \sigma^2 = \frac{\sum x^2}{n} - (\bar{x})^2$ </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> $\text{Standard Deviation, } \sigma = \sqrt{\text{variance}}$ </div> <p><u>Eg 16:</u> Find the variance and standard deviation of the data below: 15, 17, 21, 24 and 31 [$\sum x^2 = 2492, \sum x = 108, 31.84 ; 5.64$]</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> $\text{Variance, } \sigma^2 = \frac{\sum fx^2}{\sum f} - (\bar{x})^2$ </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> $\text{Standard Deviation, } \sigma = \sqrt{\text{variance}}$ </div> <p><u>Eg 17:</u></p> <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td>Number of days</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Frequency</td> <td>6</td> <td>8</td> <td>5</td> <td>3</td> <td>3</td> <td>3</td> <td>2</td> </tr> </table> <p>Find the variance and standard deviation of the above data. [$\sum f = 30, \sum fx = 126, \sum fx^2 = 634, 3.49; 1.87$]</p>	Number of days	2	3	4	5	6	7	8	Frequency	6	8	5	3	3	3	2	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> $\text{Variance, } \sigma^2 = \frac{\sum fx^2}{\sum f} - (\bar{x})^2$ </div> <p align="center">Standard Deviation, $\sigma = \sqrt{\text{variance}}$</p> <p><u>Eg 18:</u></p> <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Daily Salary (RM)</th> <th>Number of Workers</th> </tr> </thead> <tbody> <tr> <td>10 – 14</td> <td>40</td> </tr> <tr> <td>15 – 19</td> <td>25</td> </tr> <tr> <td>20 – 24</td> <td>15</td> </tr> <tr> <td>25 – 29</td> <td>12</td> </tr> <tr> <td>30 – 34</td> <td>8</td> </tr> </tbody> </table> <p>Find the mean and standard deviation of the above data. [$\sum f = 100, \sum fx = 1815, \sum fx^2 = 37185, RM18.15; 6.51$]</p>	Daily Salary (RM)	Number of Workers	10 – 14	40	15 – 19	25	20 – 24	15	25 – 29	12	30 – 34	8
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Effects of uniform changes in data on

	+ k	-k	x k	÷k
Mean , Median, Mode	+ k	-k	x k	÷k
Range, Interquartile Range	No Changes		x k	÷k
Standard deviation	No Changes		x k	÷k
Variance	No Changes		× k ²	÷ k ²