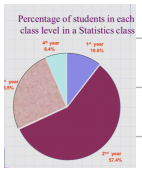
Diagrams :- lec3

Pie Chart :-

Displays data in percentages

Excellent in showing part vs whole comparisons ←

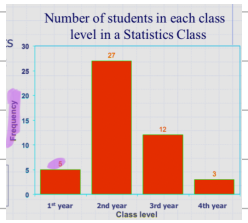


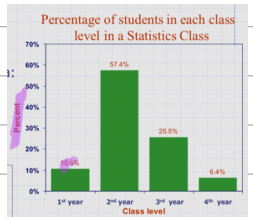
Bar Graphs :-

using percentages
using frequencies

Excellent for showing ← Magnitude differences

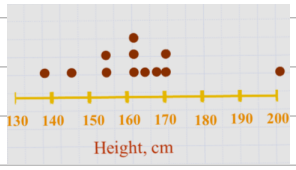
Allows easier comparisons ← between data sets of different sizes مقارنة بين البيانات حسب الحجم





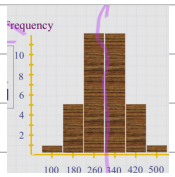
Dotplot :-

خط اعداد توضع عليه النقاط التي تمثل القيم

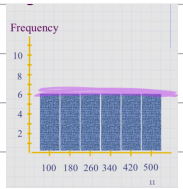


Histogram :-

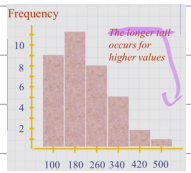
A- Symmetrical, normal or bell-Shaped



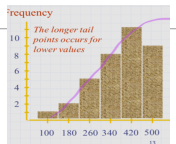
B- uniform or rectangular



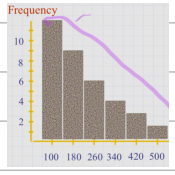
C- skewed right or + skewed



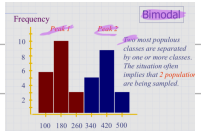
D- skewed left or - skewed

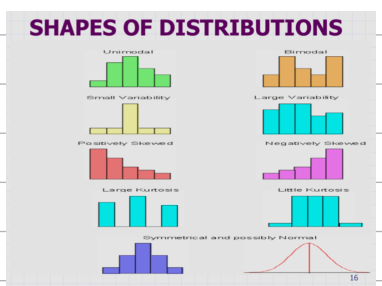


D- J-Shaped



E- Bimodal





7. By looking at the following set of data: (67, 67, 67, 70, 70, 61, 66, 64, 65, 63) the representing histogram will be:
   a. Symmetrical
   b. Uniform
   c. Positively Skewed
   d. Negatively Skewed

Answer: d. negatively skewed

Part 2

* Sample Mean :-

$\bar{X}$

6, 3, 8, 6, 4 — مجموعهم وبقسمهم على عددهم

$\frac{6+3+8+6+4}{5} = 5.4$

1. One of the following measures of tendency need(s) data organization:
   a. Mean
   b. Median
   c. Mode
   d. Two of the above

Answer: b. Median

* Sample Median :-

$\tilde{X}$

* لازم ارتبهم

1, 2, 3, 4, 5 — * اذا عدد فردي الي بنص

$\tilde{X} = 3$

1, 2, 3, 4, 5, 6 — اذا عدد زوجي بجمع الوسطين

$\tilde{X} = \frac{3+4}{2} = \frac{7}{2} = 3.5$ — وبقسمهم على 2

3. The median of this set of data (2, 4, 3, 6, 1, 8, 9, 2, 5, 7) is:
   a. 2
   b. 4
   c. 4.5
   d. 4.7

Answer: c. 4.5

* Sample Mode :-

* ممكن يكون الوسط رقم

* هو الرقم الأكثر تكرارًا

1, 2, 2, 3, 3, 3, 4

Mode = 3

13. The value in a series of data with a highest frequency is termed as? Select one
   a. Mean
   b. Standard error
   c. Median
   d. Mode
   e. Range

Answer: d. Mode

* Sample Variance :-

S^2

① $\bar{X}$ = — 6, 3, 8, 6, 4

② $\sum (X-\bar{X})^2$ =

③ $\frac{\sum (X-\bar{X})^2}{n-1}$ =

Recall data: 6, 3, 8, 6, 4 and $\bar{x} = 5.4$

x	$x-\bar{x}$	$(x-\bar{x})^2$
6	0.6	0.36
3	-2.4	5.76
8	2.6	6.76
6	0.6	0.36
4	-1.4	1.96
Total (Σ)	0	15.20

The sample variance is:

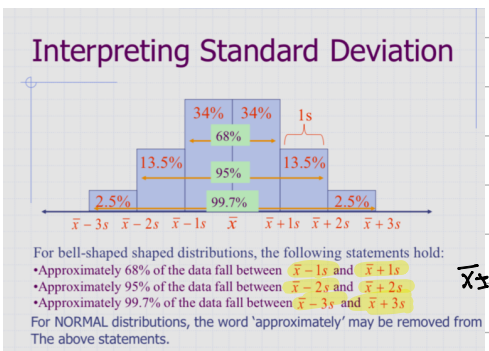
$\frac{\sum (x-\bar{x})^2}{n-1} = \frac{15.2}{5-1} = \frac{15.2}{4} = 3.8$

* Sample Standard Deviation :- S

① $\bar{X}$ =

② S^2 =

③ $\sqrt{S^2}$ =



$\bar{X}$ = Mean

$S = \sqrt{S^2}$

↓

Standard deviation

أي

$\bar{X} \pm 1s$ — مثلاً 68% من الطلاب علاماتهم

$\bar{X} \pm 2s$ ///// 95%

$\bar{X} \pm 3s$ ///// 99.7%