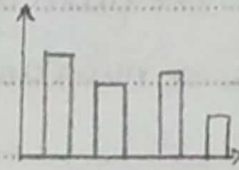


» Types of Graphs «

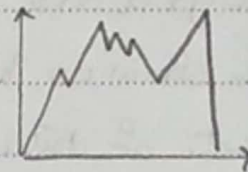
11] Bar Graph

Show the number in Categories.



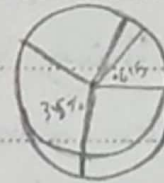
12] Line Graph

Show change over Time.



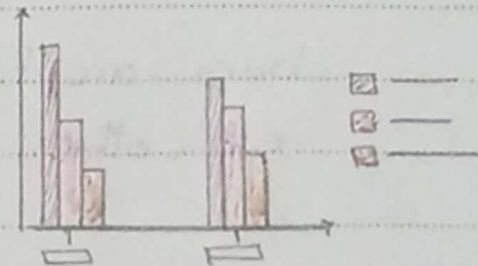
13] Circle Graph

Compare parts of the data to the whole.



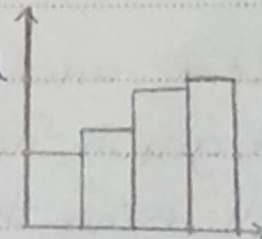
14] Double bar Graph

Compare two or more sets of Data.



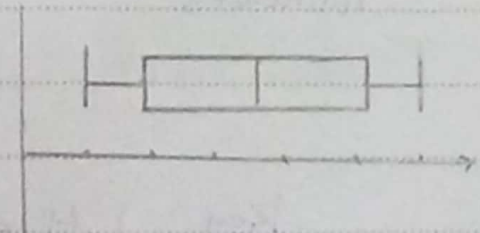
15] Histogram

Show Frequency of data divided into intervals.



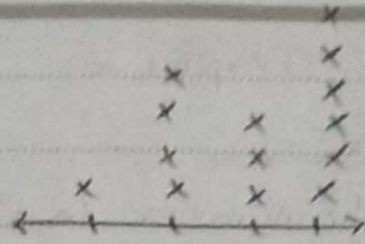
16] Box and Whisker

Show measures of variation.



Line plot

Show Frequency data
on a number line



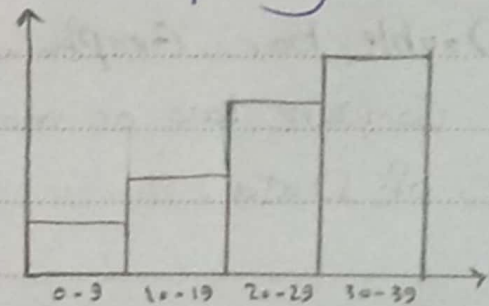
Histograms

It shows how often different values occur in a set of data.

Visual representation of how many times something happens.

- X-axis always represents the range of values
- Y-axis always represents the frequency

bars are touching each other.



Stem-and-Leaf Plot

A graph that organizes data by using the place values of numbers

Ex: 10, 11, 14, 31, 33

Key 1 | 4 = 14

Stem	Leaf
1	0 1 4
2	
3	1 3

Ex:

First: List the numbers in order from least to greatest.

3, 5, 5, 6

11, 12, 14, 14, 16

20, 23, 25, 28

35, 36, 37

41, 43, 48

60, 62, 69

Stem | Leaf

0 | 3 5 5 6

1 | 1 2 4 4 6

2 | 0 3 5 8

3 | 5 6 7

4 | 1 3 8

5 |

6 | 0 2 9

second: draw the stem-leaf graph

third: make a key so reader understands

what are they looking at

الرقم يعبر عنه أي من أي رقم موجود

key $1 \mid 4 = 14$ years old

Ex: 96, 99, 108, 115, 117, 130, 133, 139

9 | 6 9

10 | 8

11 | 5 7

12 |

13 | 0 3 9

Key $10 \mid 8 = 108$

Box and whisker

1) List the numbers in order from least to greatest.

2) Find five important numbers from the data set

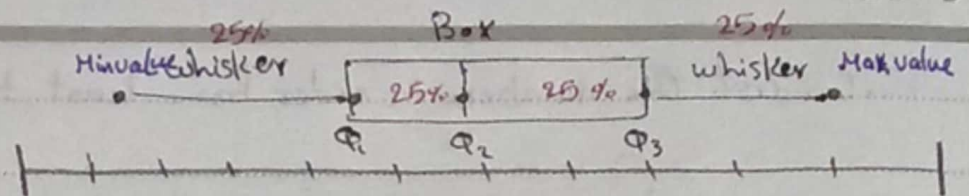
1- Minimum value : 3

2- Maximum value : 69

3- Median (Quartile 2) : 24

4- Quartile 1 : 12

5- Quartile 3 : 41



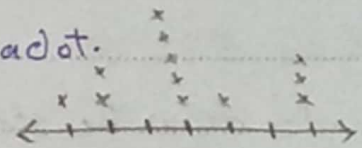
Interquartile Range or IQR

$$Q_3 - Q_1$$

Dot plot

Each data point is represented by a dot.

they are simple and easy to understand



Pie Chart

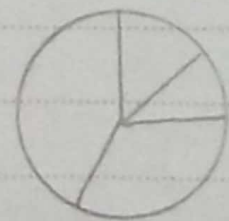
type of graph that's divided into slices each piece are expressed in percentages

$$\frac{\text{total}}{360} = \square$$

$$\text{degree} = \square \times \text{frequency of each category}$$

$$\frac{100\%}{\text{total}} = \text{Percentage} = \square$$

$$\square \times \text{freq} = \square$$

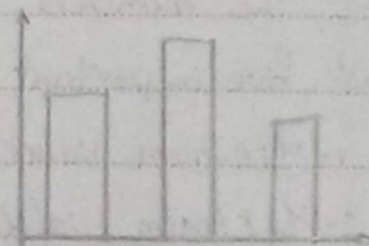


Bar chart

uses bars or columns to reflect the data

X-axis → Qualitative variable

Y-axis → frequency

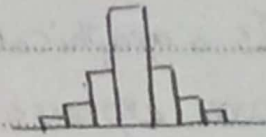


Symmetry and Skewness

- the shape of a distribution

* Symmetrical:

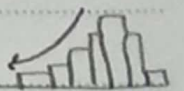
if it can be divided into two equal sizes of the same shape



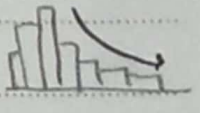
* Skewness:

refers to asymmetry

→ Skewed to left

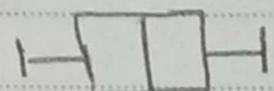
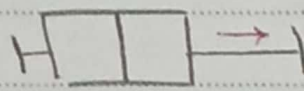
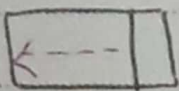
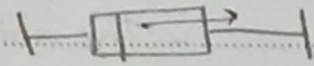


→ Skewed to right



unequal boxes

equal boxes



skewed to left

skewed to right

symmetrical

- in symmetrical: the plane of symmetry will always be at the median

$$\text{Mean} = \text{Median}$$

Skewed:

skew to left: mean is less than Median

the mean will be closer to left side.

skew to right: mean is greater than Median

the mean will be closer to right side.

Heatmap

Is a graphical representation of data where values are expressed as colors.

it provides an effective visual summary of information professionals use heat maps to identify the level of performance for different divisions.

benefits:

- Enhance communication with stakeholders
- High Engagement with a target Audience
- The ability to derive valuable insights from vast data set.

Violin plot

is a method of plotting numeric data

it is a combination of a box plot and a Kernel Density plot.

provides a visualization of data distribution.

- kernel density estimation the outer layer of the violin plot, displays the density of data at different values
- the width of the plot at different values indicates the density of the data

