

# Methods of Data Representation

Top management, customers, stakeholders and other concerned top level authority members rarely have enough time to go through whole reports. Hence requires presenting the data in such a manner that enable reader to interpret the important data with minimum efforts and time. Thus, CAT checks how well an aspirant understands these methods.

**Data presentation can be broadly classified in two ways:**

## **Non-Graphical Methods**

Tabular Form  
Case Form

## **Graphical Methods**

Pie charts  
Bar Charts  
Line Graphs  
Geometrical Diagrams

# Non Graphical Methods

---

## **TABULAR FORM**

Tabular data presentation method or better call it 'numerical data tables' is the most commonly used method of data presentation. It correlates or measures two things/variables at a time.

One variable get represented in **columns** and other in **rows** and particular intersection by row and column is known as a **cell**

**Following Example will lead to a better understanding of method.**

### **EXAMPLE: PRODUCTION OF TWO-WHEELERS IN INDIA**

<b>Year</b>	<b>Scooters</b>	<b>Motor-Cycles</b>	<b>Mopeds</b>	<b>Total</b>
1995-96	642083	302520	449688	1394291
1996-97	725735	429037	445694	1600466
1997-98	766620	430366	406081	1603067
1998-99	833802	461955	460398	1756155
1999-00	1225895	809087	621035	2656017

**There are numerous questions that can be formed from the given data. Some of them are as follows:**

- **CONTRIBUTION OF ANY TYPE OF TWO WHEELER IN TOTAL PRODUCTION IN ANY PARTICULAR YEAR?**

This is a simple question of percentage of certain object out of mass at a given time.

**EX:** You may be asked to calculate contribution of Scooters in terms of total production in the year 1998-99. That will be

=

- **RATE OF CHANGE OF A PARTICULAR TYPE OF TWO WHEELER'S PRODUCTION?**

This is a question of percentage change of certain object over certain time.

**EX:** Say, Growth of Scooters from 95-96 to 99-2000 will be

=

- **Growth rate of some particular type of two wheeler over other?**

**Note:** The questions could be based upon any kind of correlation between the two variables that a table represents.

## **CASE FORM**

This is paragraphed form of representing data and rather than using scientific system and following a rigid protocol to examine limited number of variables, this method involve an in-depth, longitudinal examination of a single instance or event.

As far as Test's point of view is concerned, generally, this form is not asked directly. Reading comprehension is the area where this method's replica could be seen.

**This method generates the following type of questions:**

- The best strategy in the present condition?
- What should be the strategy?
- Strategy evaluation of a particular condition?

## **Graphical Methods**

---

### **PIE CHART**

In this method the data is presented in circle ie. Using 360 degrees to represent 100.%

The only drawback with this particular method is only one co-ordinate can be plotted, hence usage is restricted. This method generally used to show a part of data along with other methods.

This method is one of most important read for CAT's perspective.

**Following Example will help to understand method better.**

**EXAMPLE:Revenue Distribution Of An Industry**

<b>Market Segment</b>	<b>Revenue</b>
Corporate	4945
Small Business	2516
Consumer	6091
Total	13552

This data can be plotted only on a pie chart only after knowing the individual segment's proportion to the total i.e. after knowing the percentage or degree proportion of the segment.

Simple percentage formulae will give the following additional data.

<b>Market Segment</b>	<b>Revenue</b>	<b>%Proportion</b>	<b>Central Angle or degree</b>
Corporate	4945	36	129.6
Small Business	2516	19	68.4
Consumer	6091	45	160
Total	13552	100	360



**Note:** This picture is only to support understanding and doesn't reflect actual dimensions.

**For quantitative usage:**

- 1 Degree = .2777 Percent
- 1 Percent = 3.6 Degree

Some common questions that are formed from this method are:

- **Change is central angle for a percentage change?**
- **Percentage change for central angle change?**

## Bar Charts

This method plots the data with the help of bars. This commonly used method is considered the most accurate as it doesn't involve interpolation or extrapolation at any point while measuring the data.

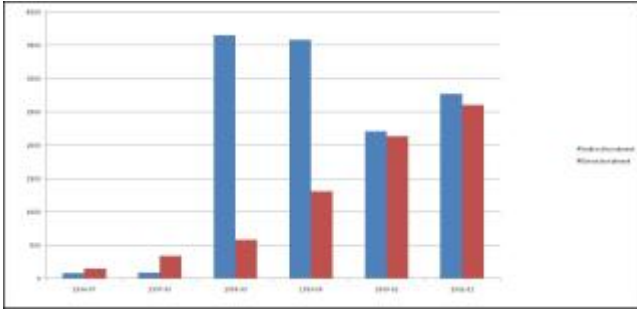
This way the data can be presented to make comparative evaluation of parameters very easy.

There are three type of bar charts which we will study with the help of an example.

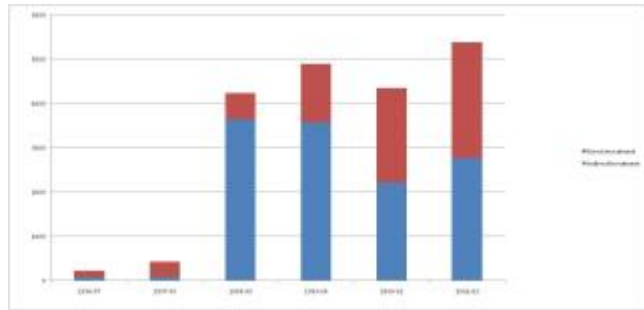
### EXAMPLE: Investment Division

Year	Indirect Investment	Direct Investment
1996-97	80	150
1997-98	92	341
1998-99	3649	586
1999-00	3581	1314
2000-01	2214	2133
2001-02	2775	2609

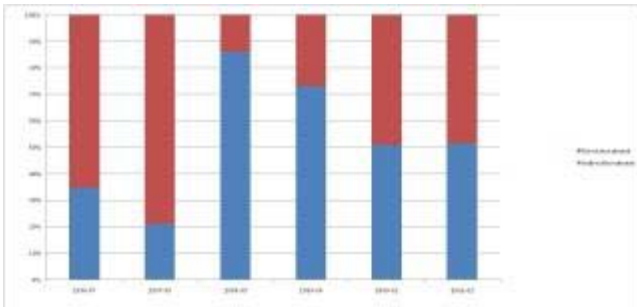
**CLUSTERED BAR CHART** will present the data as:



**STACKED BAR CHART** will present the data as:



**100 percentage STACKED BAR CHART** will present the data as:



**Note:** Difference is mainly in the bar style.

**Following are the type of questions that are generally formed from this method type:**

- Values of any particular object?

**Ex:** What is the highest or the lowest values of the foreign investment / direct investment?

- General directional based questions?

**Ex:** What's the market trend?

- Ratio between different objects?

**Ex:** What's the ratio of II to DI in a particular year?

- Contribution/margins of a particular variable?

**Ex:** Contribution of DI in the total inflow in a particular year or as a whole?

- Period for a particular variable change?

**Ex:** What's the period when II/DI records the highest growth or decline?

- Proportions are generally measured.

## **TABULAR FORM**

This method shows the variation of a parameter with respect to another and is calibrated on x and y axis where y axis is the vertical side and x axis is the horizontal side of the graph.

This method is mainly used to present the data that determines the trend or rate of change. The slope of line generally shows the magnitude of change, also known as elasticity.

**This method is generally used to show:**

- Cost curves
- Inflow and outflow statements
- Production patterns
- Sales graphs etc

**NOTE:**

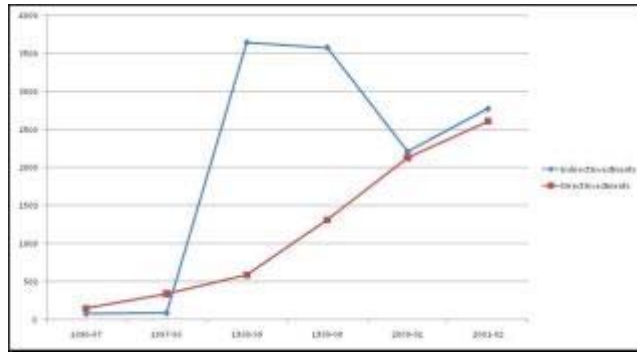
- THE SLOPE OF THE GRAPH INDICATES THE ABSOLUTE CHANGE AND NOT THE CHANGE.
- THE SIMPLE AND CUMULATIVE AVERAGE GROWTH ARE THE TWO CONCEPTS THAT MUST BE KEPT IN MIND WHILE SOLVING THE PROBLEMS BASED ON THIS PARTICULAR METHOD.

Let's get ourselves in a little detail with this example:

**EXAMPLE: Investment Division**

<b>Year</b>	<b>Indirect Investment</b>	<b>Direct Investment</b>
1996-97	80	150
1997-98	92	341
1998-99	3649	586
1999-00	3581	1314
2000-01	2214	2133
2001-02	2775	2609

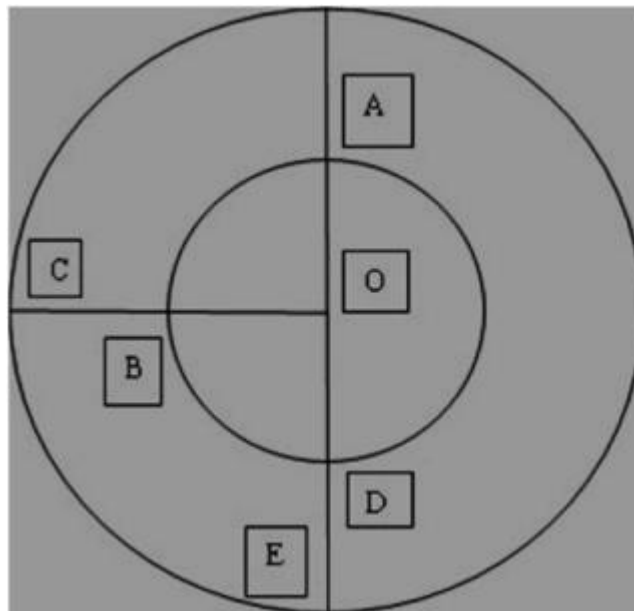
**This data will be shown via Graphical method as follow:**



## GEOMETRICAL DIAGRAMS

This is the most complicated form of data presentation and very often can be seen in the TEST. For the interpretation of these diagrams you got to have proper knowledge about the properties of that particular figure. This figure could be any sort of geometric figure. A Square Or cube Or a circle etc.

### EXAMPLE: CITY MAP



Some areas in Delhi's map.

- $OA = 5 \text{ KM}$
- $A = 2 \text{ KM}$

- $O = \text{CENTER FOR BOTH THE CIRCLES.}$

Other than the normal question from section, this method generates the following type of questions:

- DISTANCE BETWEEN OC?
- DISTANCE BETWEEN ED?