



MAP READING

What is Map?

A map is a representation of an area of earth or any celestial body drawn in scale with help of conventional sign, usually on a flat surface or paper.

Map Reading:

- i. To know the way of interpreting and retranslating the symbols - lines on the map.
- ii. To know the distance of the objects.
- iii. To locate the destination, way to reach there.
- iv. To locate your position.

Types of Map:

There are different types of map as per scale or use (e.g: Cadastral/Atlas/Relief etc) Scouts/Guides are concerned with Topographical map (2cm to 1km / 5km) and Tourist map. Topographical Sheets are produced by **SURVEY OF INDIA** (Kolkata office 13 Wood Street Kolkata-16 near Park Street)

Part of Map (5D)

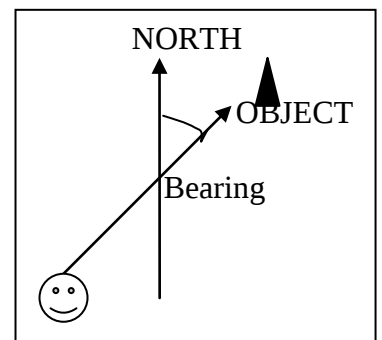
- I) **Direction:** Each shows the Direction i.e. True North or Magnetic North or Grid North.
- II) **Distance:** Calculate through Scale.
- III) **Details:** a) Valuable information regarding the map (No. Of the map, Area it covers, Magnetic variation, Year of Publication, Contour Reference, Conventional Sign, etc.) b) Written on the margin.
- IV) **Demarcation:** Boundary of a Land.
- V) **Designation:** Name of some prominent features.

Direction:

Commonly north is indicated at the top/up side of the map

Kinds of North are:

- a) True North as indicated by a Pole Star.
- b) Magnetic North as indicated by a magnetic needle.
- c) Grid North as indicated by grid lines.



Bearing

Bearing is the angle between the lines of vision of the object with North direction at the observer's eye measured in the clockwise direction. Mainly Bearing are Forward Bearing, Back Bearing.

Bearing may be True **Bearing**, **Magnetic Bearing** and **Grid Bearing** on the Map.

♣ To measure the bearing of the point B from point A on a map

Draw a pencil line indicating the North direction through B. Join AB with a pencil line. Measure the angle by a magnet or by a Protector in clockwise direction.

Variation (V)

The angle between True north and Magnetic/Grid North

MV=Magnetic variation, GV=Grid variation ...the MV/GV changes annually.

(To set a map Calculate the present MV/GV and bring the MN/GN/TN in same line)

♣ **Distance:** To denote the distance on the map scale is used.

Scale: It is the proportion, between any two points on the map, and same two points on the ground.

♣ **Representation of Scale**

a) In word (2cm to 5km)

b) Linear Scale

c) By representative fraction (R.F.)

So 2cm to 5Km in $RF = \frac{2\text{cm}}{5\text{Km}}$

$$\frac{2\text{cm}}{5 \times 1000 \times 100 \text{ cm}} \quad \text{Or} = 1 : 2,50,000$$

Use of Scale: To measure the actual distance between two points on the map.

Details

a) Conventional signs.

b) Contour

c) Any particular information's

♣ **Conventional Signs:** These are universally used symbols. To represent the objects (natural or artificial) of the ground on the map.

Normal code of Color

Red=Man made object (House/Village/Road) Green= Forest/Vegetation/Plant

Blue=Water bodies Brown=Contour Lines/Hill Yellow=Open/Barren Land

♣ **Contour:** Is a process through which you can draw the hill/mountain/Upland in two dimension way in a map

Contour line: These are continues imaginary lines on map joining the places on the ground at equal highest above mean sea level. Normally with an interval of 20-50m by Brown color.



♣ **Vertical Interval (V.I.):** The difference of heights between two adjacent contour.

♣ **Horizontal Equivalent (H.E.):** The horizontal distance between two successive contours.

♣ **Gradient:** Rise and fall of a slope expressed by fraction $= VI / HE$.

Note: - Far apart two successive contour line mean Gentle slope, suitable for climbing, place for camp site. Overlapping contour lines ——— Position of highest point.

Grid: A system of square superimposed on the map to measure the distance in linear formation

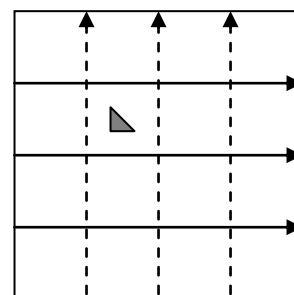
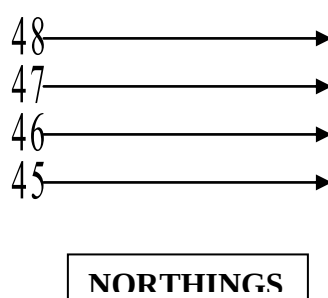
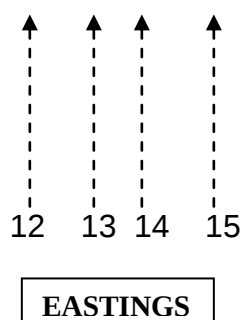
✎ **Eastings:** Vertical grid lines are drawn from south to north.

✎ **Northings:** Horizontal grid lines are drawn from west to east.

Grid Reference: Used to describe the position of an object on grid map.

♣ **Four Figure Grid Reference:** Read first **Easting** figure just left to the object then read the **Northing** figure just below the object. Write the figure side by side.

♣ **Six Figure Grid References:** The object is within the area of the square. First reads the easting figure with taking approximate value ten imaginary subdivision for the 3rd digit. Then read the NORTHING value in the same way to get 3 figure. Write the figure side by side.



SHEET Number: Each topographical sheet has a Number eg: **73**^K/₄ like the roll no of a student

Index to Sheet: To show the No and Position of adjacent topographical sheet

Finding Position on the Map

a) Resection method: By drawing rays from at least two fixed points either by Compass, or by trashing paper.

b) Inter section method: It is a process of finding out the correct position of an object by drawing rays from at least two positions of the observer on the map.

c) Inspection method: By a careful and detailed study of the ground and features both on the ground and on the map.

Setting A Map

Means placing the map in such a way that true north on the map points to true north on the ground. This can be done

I) By Compass.

II) Recognizing natural layout of feature.