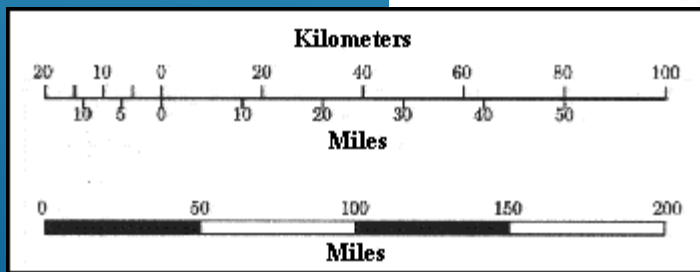
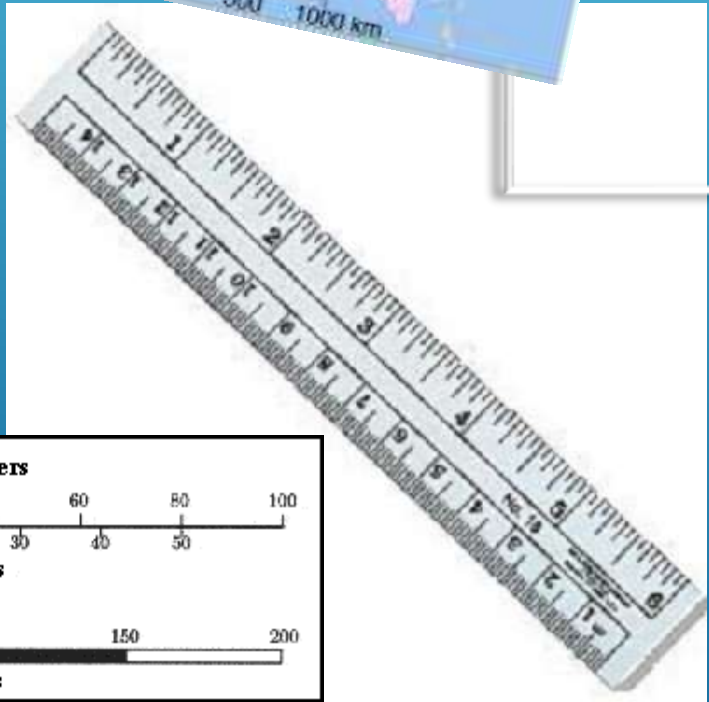



MAP SCALE



MITA SARKAR
DEPT. OF GEOGRAPHY
RAMSADAY COLLEGE

DEFINATION :

A **map scale** is the relationship between a distance on a map and the corresponding distance on the earth or the ground. Map scale may be expressed as an equivalence, usually by different units (e.g., 1inch = 1mile or 1:63,360); or graphically, as a bar scale.

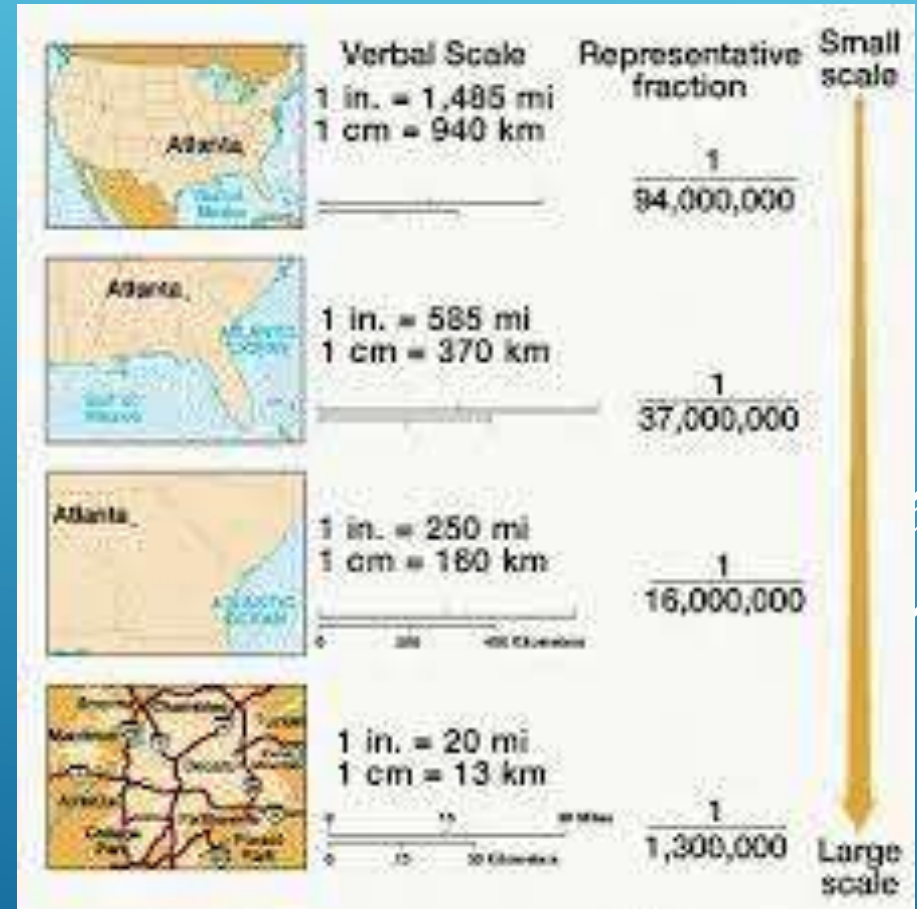
A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, located in the lower right quadrant of the slide.

MAP SCALE

LARGER SCALE

VS

SMALL SCALE



SMALL SCALE

A map showing the whole world in a small scale which allows an overall view, but not much details.

It is a kind of representation in which large areas like countries, oceans, and continents are shown on a small scale. They are wall maps or atlas maps. They show important features like mountains, plateaus, continents, and countries. Their Scale maybe $1 \text{ cm} = 100 \text{ km}$.

LARGE SCALE:

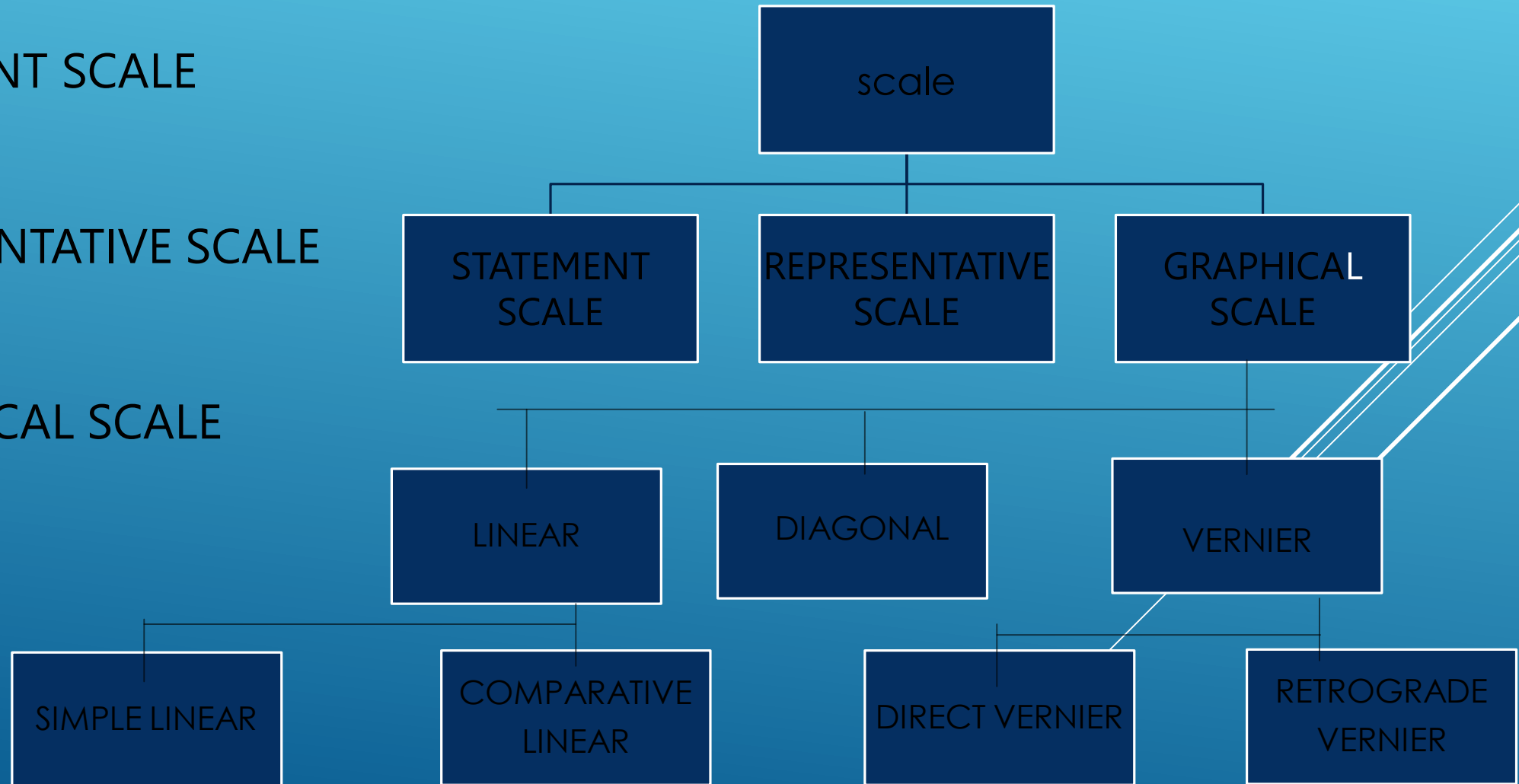
Large scale map It is a representation in which small areas like a village or towns are shown on a large scale. They are guide maps or topographic maps. Details of cities, towns, and villages are shown. The scale may be $1 \text{ cm} = 50 \text{ m}$ or 1 km .

TYPES OF MAP SCALE :

▶ STATEMENT SCALE

▶ REPRESENTATIVE SCALE

▶ GRAPHICAL SCALE



▶ STATEMENT SCALE

- When the scale of a map is stated in words, it is called a statement scale.
- Statement scale is type of map scale expression in which scale is expressed in form of a written statement, for example one centimeter on the map represent ten centimeter on the ground. This can also be expressed in short as **1cm represent 10km or 1cm to 10km.**

Advantages :

- (i) This is very simple method which is understood even by a common man.
- (ii) It requires little time to express this scale.
- (iii) It gives correct idea about distance.

Disadvantages:

- (i) It can be understood only by those who are familiar with the unit of measurement used. For example, if we say that the scale of a map is 1 cm : 1 km, it would be understood by only that person who is familiar with the metric system of measurement.
- (ii) When a map is reduced or enlarged from the original, the scale does not remain the same. This creates problems in measurement.
- iii) Changing the units of measurement is difficult in this system, and is a time consuming process.

▶ REPRESENTATIVE FRACTION SCALE :

† A representative fraction, or RF, shows the relationship between one of any unit on the map and one of the same unit on the ground. RFs may be shown as an actual fraction, for example $1/24,000$, but are usually written with a colon, as in $1:24,000$. In this example, one unit of any length (one mm, one cm, one inch, one foot, etc.) on the map represents 24,000 of those same units on the ground (24,000 mm, 24,000 cm, 24,000", 24,000', etc.).

† The RF is versatile because you are not tied to any specific units. You may work in any unit you choose, either metric, English, or other.

† The RF is called a fraction because it is just that--a fraction that shows how much the real world is reduced to fit on the map.

† A related idea is that of small scale versus large scale. Geographers use these terms differently than many people. A large scale map is where the RF is relatively large. A $1:1200$ map is therefore larger scale than a $1:1,000,000$ map. The $1:1,000,000$ map would usually be called a small scale map. This is true even though the $1:1,000,000$ map would show a much larger area than the $1:1200$ map.

ADVANTAGES :

It has universal application. Anyone can find the distance on map whether or not they're aware of the unit of measurement of that country.

-The use of units to express the size makes it the foremost versatile method.

-It is easily convertible.

DISADVANTAGES:

The only disadvantage of R.F. scale is that it cannot calculate the exact distance as it is represented in fraction.

TABLE FOR UNIT CONVERSION

1KM	1,00,000 CM
1KM	1,000 MT
1MT	100 CM
1MILE	63,360 INCH
1MILE	1760 GAUGE
1MILE	5280 FOOT
1 MILE	8 FURLONG
1FURLONG	220 GAUGE
1GAUGE	3 FOOT/ 36 INCH
1FT	12 INCH

মেট্রিক বা CGS পদ্ধতি	ব্রিটিশ বা FPS পদ্ধতি	
1 কিমি = 10 হেমি	1 মাইল = 63,360 ইঞ্চি	1 ফার্লং = 660 ফুট
1 কিমি = 100 ডেকামি	1 মাইল = 1,760 গজ	1 ফার্লং = 220 গজ
1 কিমি = 1000 মিটার	1 মাইল = 5,280 ফুট	1 ফার্লং = 10 চেইন
1 কিমি = 10000 ডেসিমি	1 গজ = 3 ফুট	1 চেইন = 792 ইঞ্চি
1 কিমি = 100000 সেমি	1 গজ = 36 ইঞ্চি	1 ফার্লং = 7920 ইঞ্চি
1 কিমি = 1000000 মিমি	1 ফুট = 12 ইঞ্চি	
1 মিটার = 100 সেমি	1 মাইল = 8 ফার্লং	
মেট্রিক পদ্ধতি থেকে ব্রিটিশ পদ্ধতি	ব্রিটিশ পদ্ধতি থেকে মেট্রিক পদ্ধতি	
1 সেন্টিমিটার = 0.3937 ইঞ্চি	1 ইঞ্চি = 2.540 সেন্টিমিটার	
1 মিটার = 39.396 ইঞ্চি	1 ফুট = 30.48 সেন্টিমিটার	
1 মিটার = 3.2808 ফুট	1 ফুট = 0.3048 মিটার	
1 মিটার = 1.0936 গজ	1 গজ = 91.44 মিটার	
1 কিলোমিটার = 3280.80 ফুট	1 মাইল = 1609.30 মিটার	
1 কিলোমিটার = 1093.60 গজ	1 মাইল = 1.6093 কিলোমিটার	
1 কিলোমিটার = 0.6214 মাইল	1 নটিক্যাল মাইল = 1.8532 কিলোমিটার	

DETERMINATION OF RF FROM STATEMENT SCALE:

Calculate the R.F. when 16 Inch on the map represents 1 mile on the ground

$$\text{R.F.} = \text{MAP DISTANCE} / \text{GROUND DISTANCE}$$

First method

Here, Map distance is 16 inch

Ground distance is 1 mile

So if we put the values in equation then , $\frac{16 \text{ inch}}{63360 \text{ inch}} = \frac{1}{3960}$

R.F 1:3960(In R.F scale, no unit is mention)

Second method

16 inch on the map represent 1 mile on the ground

$$16 \text{ inch} \quad \text{,,} \quad \text{,,} \quad = 1 \times 63360$$

$$1 \text{ inch} \quad \text{,,} \quad \text{,,} \quad = 63360 / 16 = 3960 \text{ inch}$$

So the RF is 1: 3960

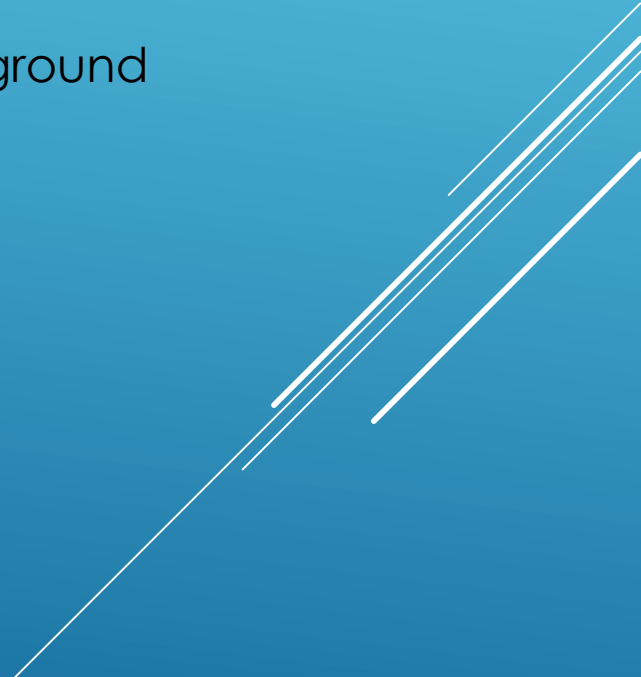
Q.2. Calculate the R.F when 1 cm on the map represents 18 km on the ground

1 cm on the map represents 18 km on the ground

$$\begin{aligned} 1 \text{ cm} & \qquad \qquad \qquad 18 \times 100000 \text{ cm} \\ & \qquad \qquad \qquad = 1800000 \text{ cm} \end{aligned}$$

RF 1: 1800000

Q3. calculate the RF when 2.5 inches on the map represents 2 miles on the ground



DETERMINATION OF STATEMENT SCALE FROM R.F

Express the RF 1: 750000 into Statement scale

According to CGS methods:

1 cm on the map represents 750000 cm on the ground

1 cm ,, ,, ,, $750000/100000 = 7.5\text{km}$

so, statement scale is 1 cm to 7.5 km

According to FPS methods

GRAPHICAL SCALE :

The graphical scale represents the same ratio, but as indicated on a ruler drawn on the map and graduated starting from 0 to the values of the actual distance. The value of the graphic scale can not be read directly and is estimated by comparison with the map.

Some features of Graphical scale:

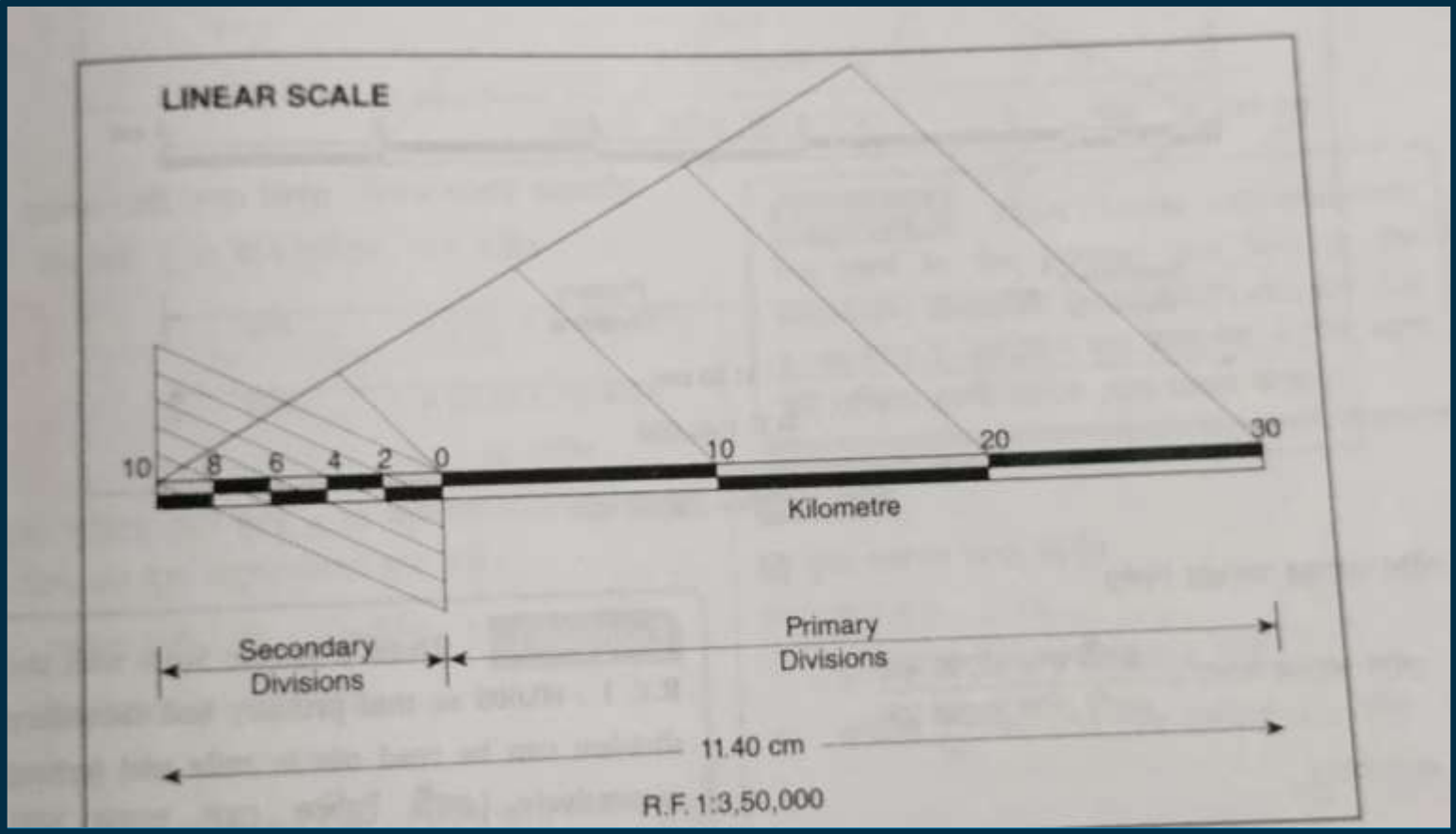
- Graphical scale is represented by a straight line divided into segments.
- Scale or representative fraction shows map distance to the corresponding ground distance.
- Importance: Graphical scale changes as per the changing size of the map. The line of the graphical scale enlarges or reduces along with. the map.

LINEAR SCALE :

A linear scale, also called a bar scale, scale bar, graphic scale, or graphical scale, is a means of visually showing the scale of a map, nautical chart, engineering drawing, or architectural drawing.

ADVANTAGES OF LINEAR SCALE:

- (i) Distances can easily be measured with the help of linear scale.
- (ii) If the map is photographically enlarged or reduced, the linear scale is also enlarged or reduced in the same ratio and remains true to the map.
- (ii) It requires time and proficiency in drawing a graphic scale.



DIAGONAL SCALE

Diagonal scale is an engineering measuring instrument which is composed of a set of parallel straight lines which are obliquely crossed by another set of straight lines. Diagonal scales are used to measure small fractions of the unit of measurement.

Diagonal scales are used to read or measure upto three units. gs and yards etc. This scale is used when very small distances such as 0.1 mm are to be accurately measured or when measurements are required upto second decimal. For example: 2.35dm or 4.68km etc.

