

Hence measurements to be made with 20.2 m tape instead of 20 m tape are 39.6 m x 29.7m (Ans).

$$\begin{aligned} \text{Diagonal measurement} &= \sqrt{(39.6)^2 + (29.7)^2} \\ &= \sqrt{1568.16 + 882.09} \\ &= \sqrt{2450.25} = 49.50 \text{ m (Ans).} \end{aligned}$$

Example 2.6 : A field was surveyed by a chain and the area was found to be 228.30 sq.m. If the chain used in the measurement was 0.6 percent too long. What is the correct area of the field ?

Solution : True area = Measured Area x (L'/L)²

Measured area = 228.30 sq.m

L' = 100 + 0.6 = 100.6 units.

L = 100 units.

True area = 228.30 x (100.6/100)²
= 231.05 Sq.m (Ans).

2.6 Types of Survey Lines

These are the lines joining the main survey stations following are the types of survey lines.

- i) Base line
- ii) Tie line
- iii) Check line

2.6.1 Base Line : A line which is generally longest of all the survey lines and upon which the entire frame work is built up is known as a base line. It generally runs in the centre of the area to be surveyed and should laid off on the level ground.

2.6.2. Tie Line : A line joining two Tie stations is known as a Tie line. It is run to take the interior details which are far away from the main lines and also to avoid long offsets.

2.6.3. Check Line : A line which is used to check or prove the accuracy of the frame work as well as the plotting work is known as the check line. It is a line which runs from apex of a triangle to any other fixed points on any two sides of a triangle.

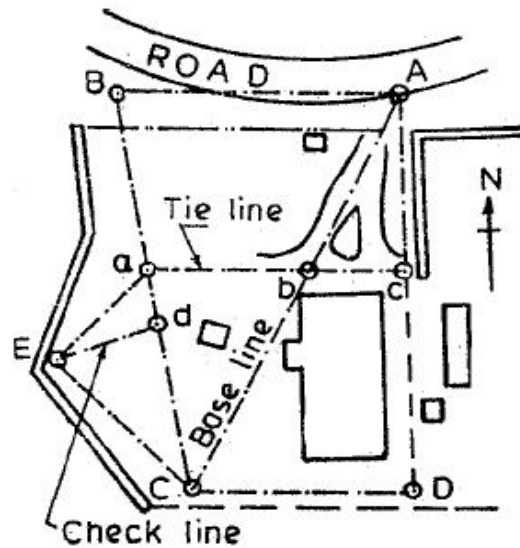


Fig. 2.6

2.7. Types of Survey Stations

The beginning and end of a chain line is called survey station. There are two types of survey stations.

a) Main survey station b) Tie station or Subsidiary station.

a) Main survey station: These are important points at the beginning and at the end of the chain lines.

b) Tie station: These are points selected on the main survey lines for locating the interior details.

2.8 Fixing of Survey Stations

The following points should be kept in mind while fixing a survey station

1) Main stations should be located on plane ground and should be mutually visible.

2) The fundamental principle of surveying i.e. working from whole to part should be observed. A long line should be laid across and other triangles should be built on it.

3) The network should consist only well conditioned triangles.

4) Long offsets should be avoided.