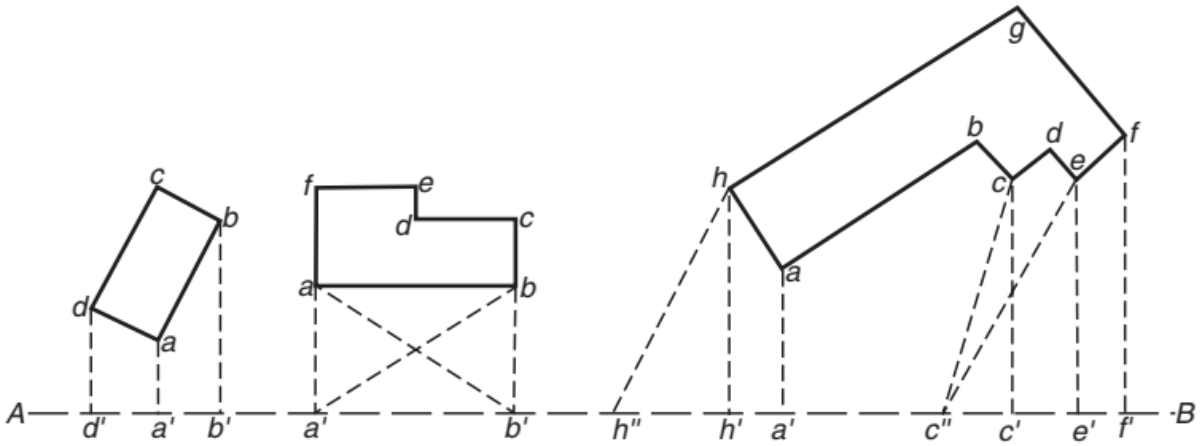
Miscellaneous field problems

OFFSETS

In chain surveying, the positions of details *i.e.*, boundaries, culverts, roads stream bends, etc., are located with respect to the chain line by measuring their distances right or left of the chain line. Such lateral measurements are called *offsets.* There are two types of offsets *i.e.*,

(i) Perpendicular offsets, (*ii*) Oblique offsets.

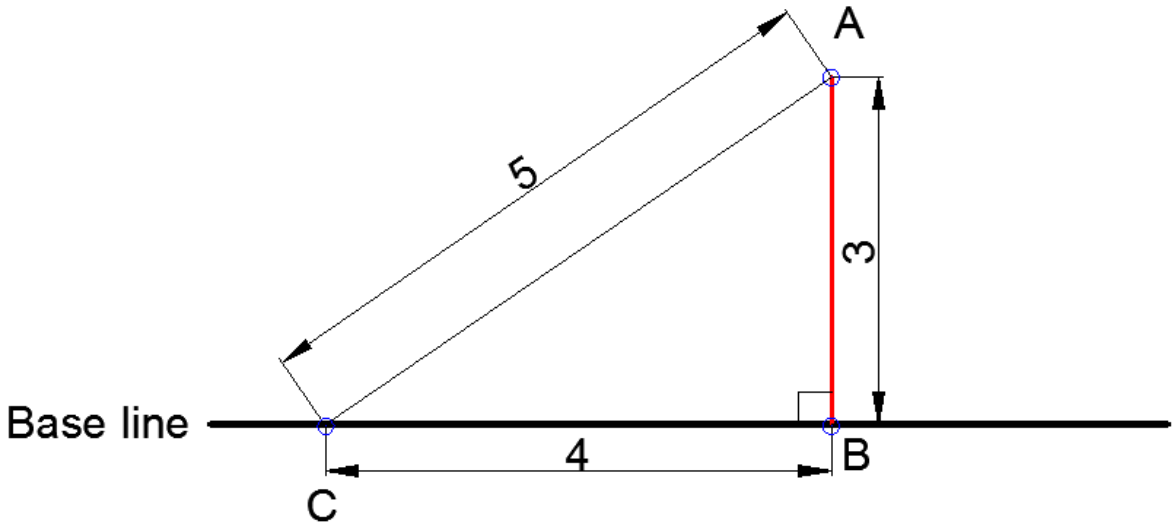
Perpendicular and oblique offsets.



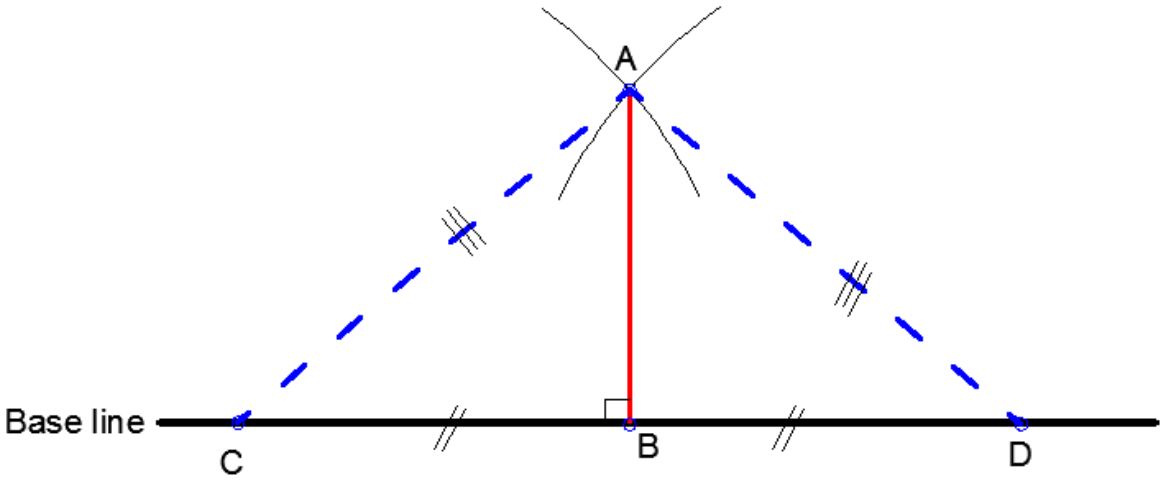
Offsets to building corners.

1- erecting perpendicular:

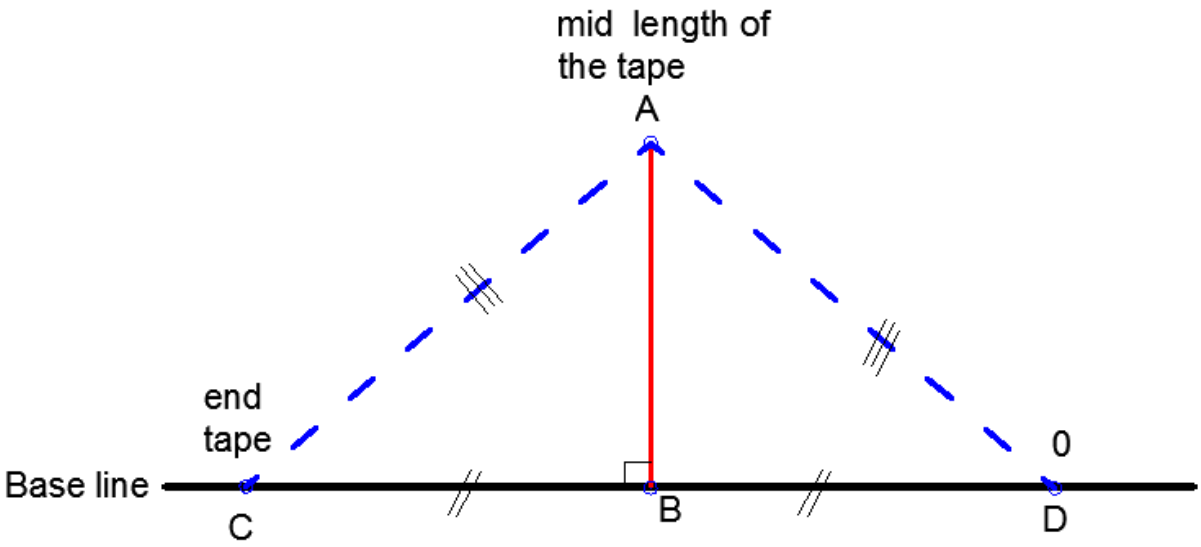
a- erecting perpendicular line from point lies on the baseline
to erecting perpendicular line on point (B) Will Use a triangle, the sides length 3 m , 4 m and the length of chord is 5 m.



b- Erecting perpendicular line from point lies on the baseline:
To Erecting a perpendicular from given station (B) on a given base line.
Specify (CB = BD) from Draw two equality circular radius from D&C, the two radius will intersection at A, the line AB is perpendicular to CD



c- Erecting perpendicular line from point lies on the baseline:(length of tape)



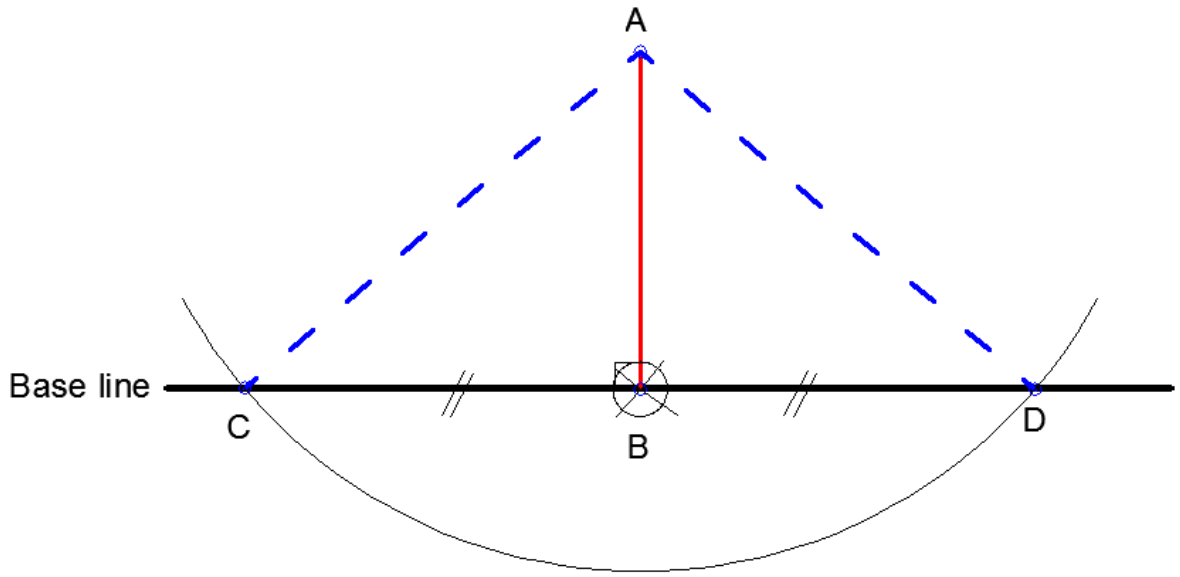
2- Dropping perpendicular:

Dropping perpendicular line from point outside the baseline

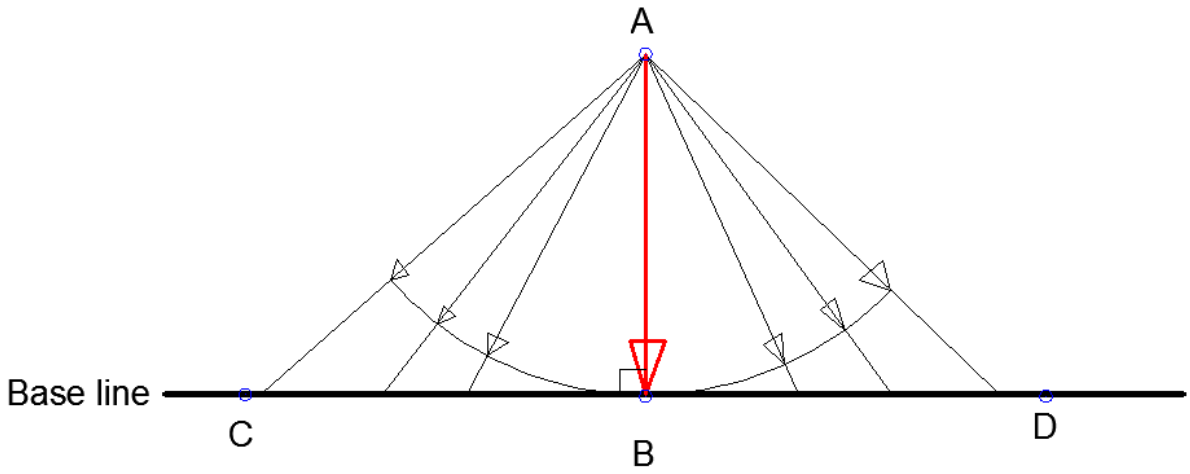
A-When the point is accessible

Note accessible=clear

i-the radius method



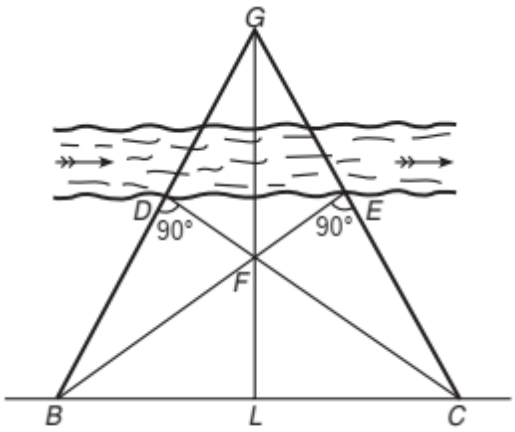
ii-short distance



B- **When the point is inaccessible**

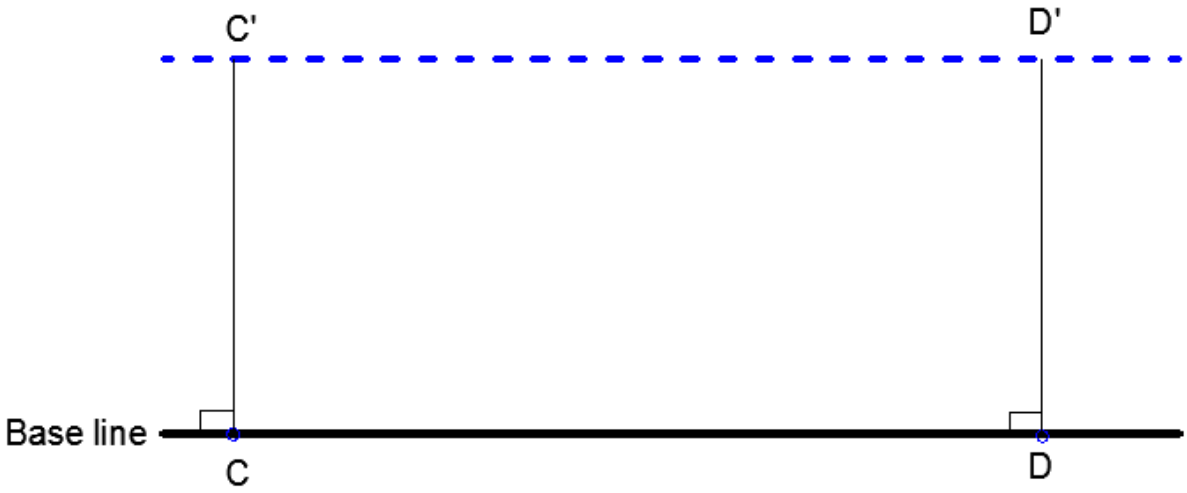
dropping perpendicular

Method. Select two points *B* and *C* on the chain line. Drop *perpendiculars BE to CG* and *CD* to *BG*. Locate their point of intersection *F*. Produce GF to L which is the required perpendicular to BC. This solution is based on the geometrical property of a triangle *i.e.* Perpendiculars drawn from the vertices on opposite sides, intersect at a point.



Parallel baseline

Parallel line to accessible line through a given point.



OBSTACLES IN CHAINING

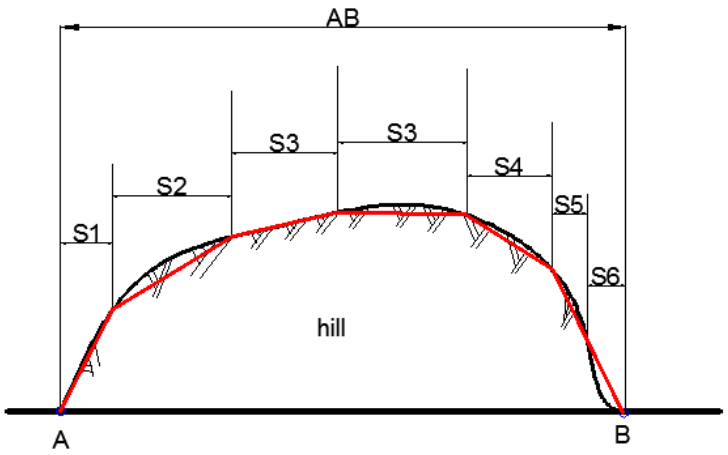
Various types of obstacles generally met during chaining, may be overcome by any one of the following methods.

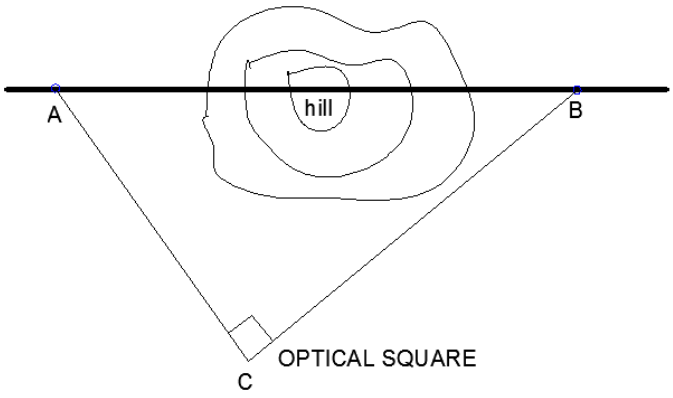
Obstacles to chaining are of the following types:
1. Obstacles which obstruct ranging but not chaining.
2. Obstacles which obstruct chaining but not ranging.
3. Obstacles which obstruct both ranging and chaining.

1. Obstacles which obstruct ranging but not chaining.
   Obstacles which obstruct ranging but not chaining are hills and depressions

a-in case hills
choose points between A and B

AB=S1+S2+S3+……



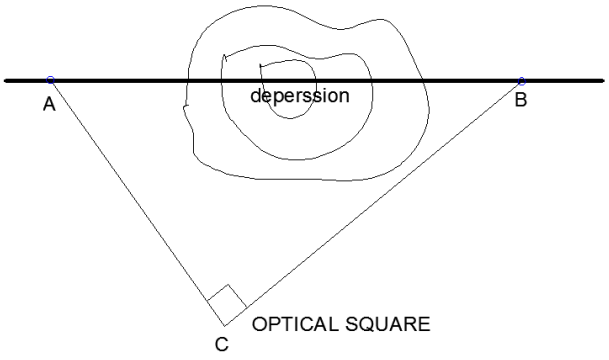


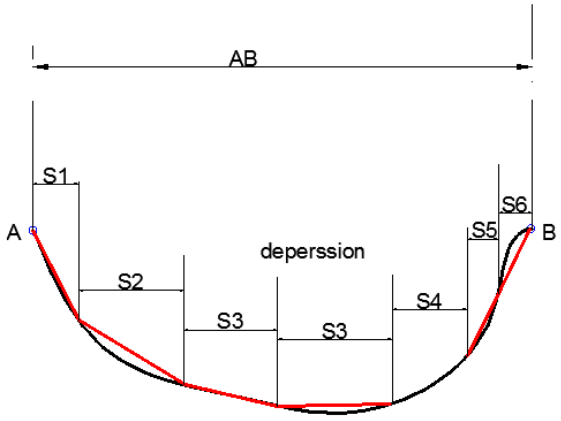
$AB^2 = AC^2 + CB^2$

$AB = \sqrt{AC^2 + CB^2}$

b-in case depression

Choose points between A and B





$AB^2 = AC^2 + CB^2$

$AB = \sqrt{AC^2 + CB^2}$