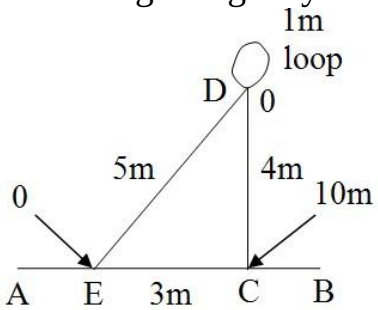
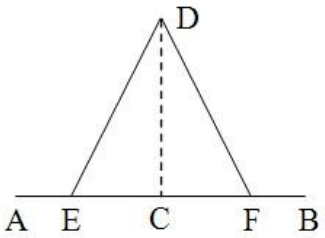
Basic problems in chaining:

1. **To erect a perpendicular to a chain line from a point on it**: the 3 methods of establishing perpendiculars with the tape are based on familiar geometric constructions. The following are some of the methods most commonly used. The illustrations given are for a 10m tape. However, a 20m tape may also be used.

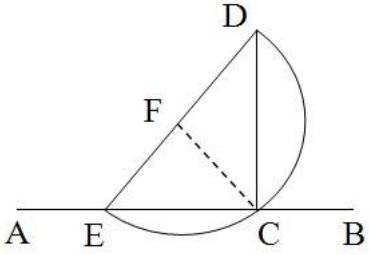
a. The 3-4-5 method, let it be required to erect a perpendicular to the chain line at a point C in it as figure shown, establish a point E at distance of 3m from C, put the 0 end of the tape (10m long) at E and the 10m end at C, the 5m and 6m marks are brought together to form a loop of lm. The tape is now stretched tight by fastening the ends E and C. the point D is thus established. Angle DCE will be 90°. One person can set out a right angle by this method.



b. Second method as shown in figure below, select E and F equidistant from C. hold the zero end of the tape at E, and 10m end at F. pick up 5m mark, stretch the tape tight and establish D. join DC.

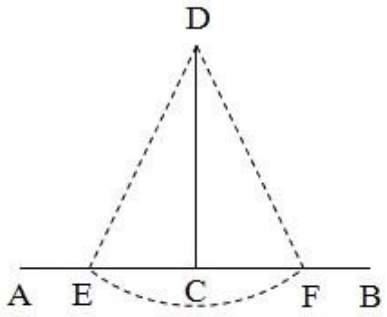


c. Third method as shown in fig. below, select any point F outside the chain, preferably at 5m distance from C. hold the 5m mark at F and zero mark at C, and with F as center draw an arc to cut the line at E. join EF and produce it to D such that EF=FD=5m. Thus points D will lie at the 10m mark of tape laid along EF with its zero end at E. join DC.

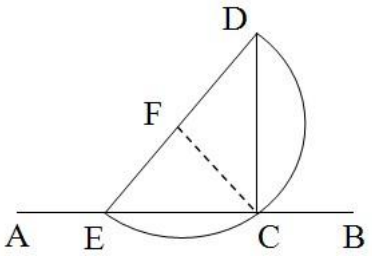


2. **To drop a perpendicular to a chain line from a point outside it:** Let it be required to drop a perpendicular to a chain line AB from point D outside it.

a. First method as shown in figure. Select any point E on the line. With D as center and DE as radius, draw an arc to cut the chain line in F. bisect EF at C. CD will be perpendicular to AB.



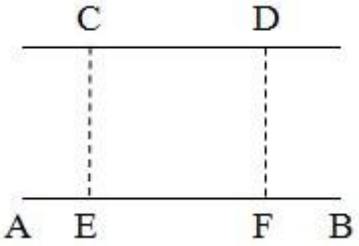
b. Second method as shown in fig below in fig. select any point E on the line, join ED and bisect it at F. with F as center and EF or FD as radius, draw an. arc to cut the chain line in C. CD will be perpendicular to the chain line.



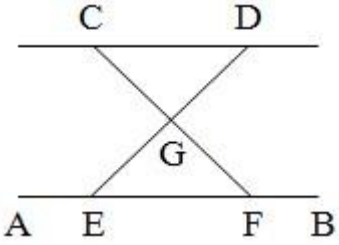
3. **To run a parallel to chain through a given point:**

Let it be required to run a parallel to a chain line AB through a given point C.

a. First method as shown in figure below. Through C, drop a * perpendicular CE to the chain line. Measure CE. Select any other point F on the line and erect a perpendicular FD. Make FD=EC. Join CD.



b. Second method as shown in figure. Select any point F on the chain line. Join CF and bisect at G. select any other point E on the chain line. Join EG and prolong it to D such that EG=GD. Join CD.



4. **To run a parallel to a given inaccessible line through a given point:** Let AB be the given inaccessible line.