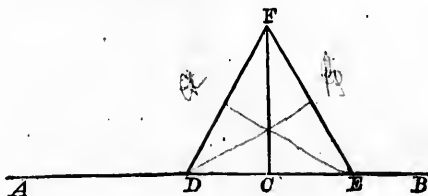


PROPOSITION XI. PROBLEM.

To draw a straight line at right angles to a given straight line from a given point in the same.



Let AB be the given st. line, and C a given pt. in it.

It is required to draw from C a st. line $\perp$ to AB .

Take any pt. D in AC , and in CB make $CE=CD$.

On DE describe an equilat. $\triangle DFE$. I. 1.

Join FC . FC shall be $\perp$ to AB .

For in $\triangle s DCF, ECF$,

$\therefore DC=CE$, and CF is common, and $FD=FE$,

$\therefore \angle DCF = \angle ECF$; I. c.

and $\therefore FC$ is $\perp$ to AB . Def. 9.

Q. E. F.

COR. To draw a straight line at right angles to a given straight line AC from one extremity, C , take any point D in AC , produce AC to E , making $CE=CD$, and proceed as in the proposition.

EX. 1. Shew that in the diagram of Prop. ix. AF and ED intersect each other at right angles, and that ED is bisected by AF .

EX. 2. If O be the point in which two lines, bisecting AB and AC , two sides of an equilateral triangle, at right angles, meet; shew that OA, OB, OC are all equal.

EX. 3. Shew that Prop. xi. is a particular case of Prop. ix.