

MT 453

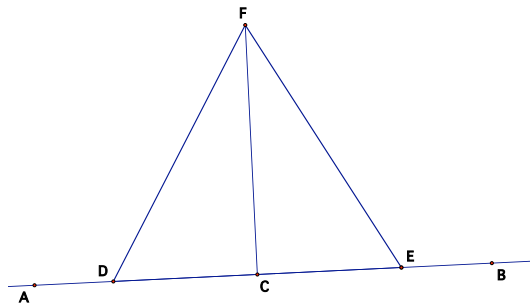
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Proposition I.11

How to construct a perpendicular line to a given line from a point on the line.



Let AB be the line and C be the point on the line.

Let D be between A and C , and E be between C and B such that $DC = CE$

[prop. 1.3]

Draw FC .

Claim: line FC is perpendicular to AB at point C

In $\triangle DFC$ and $\triangle EFC$, $DF = EF$, $DC = EC$, and FC is common.

So $\triangle DFC$ and $\triangle EFC$ are congruent.

Therefore, $\angle DCF = \angle ECF$ [I.8], but they are adjacent, so they are right. [def.

10]