

# MT 453 Elements Day 8

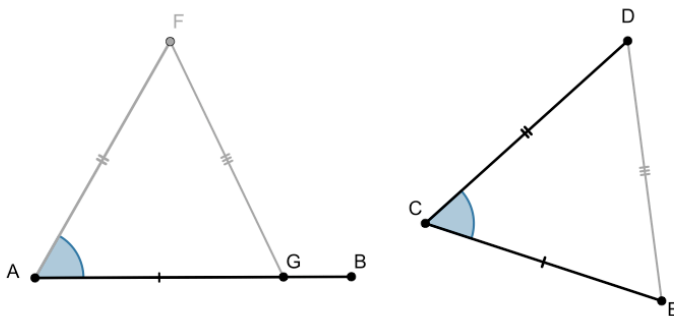
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## Proposition I.23

*Given a straight line, construct an angle equal to a given angle on that line at a point.*

Let  $AB$  be the given straight line.  
Let  $\angle DCE$  be the given angle.



Draw  $DE$ . (Post. 1)

Construct  $\triangle AFG$  on  $AB$  so that  $AF = CD$ ,  $FG = DE$ , and  $AG = CE$ . (Prop. I-22)

Then  $\triangle AFG$  is congruent to  $\triangle CDE$ . (Prop. I-8) We conclude that  $\angle FAG = \angle DCE$ .

Q.E.F.

**Comment:**

The triangle is constructed on a *given line*. But in Proposition I-22, a triangle is constructed on a *new line*, one not given in advance.