

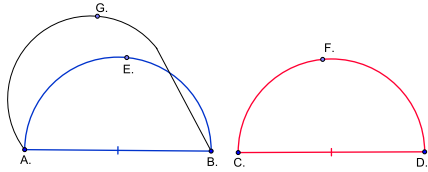
Proposition III.24

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Prop III.24

Similar segments of circles on equal straight lines equal one another.



We know that $AB = CD$.

Apply CFD to AEB , placing A on C , and B on D .

Segment AEB must coincide with CFD .

If not, then one of two things must be true.

1. CFD is within/outside AEB .

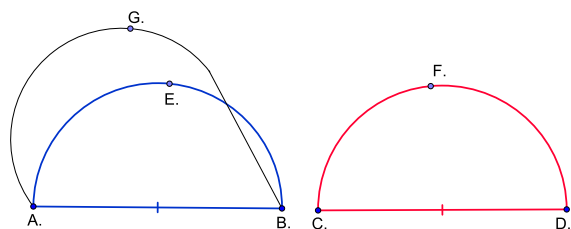
However, this is a contradiction because two unequal circle segments cannot be placed on the same straight line. (III.23)

2. CFD falls awry as AGB .

But this means a circle cuts another circle at more points than two, which is also a contradiction. (III.10)

Therefore, AEB coincides with and equals CFD .

Q.E.D.

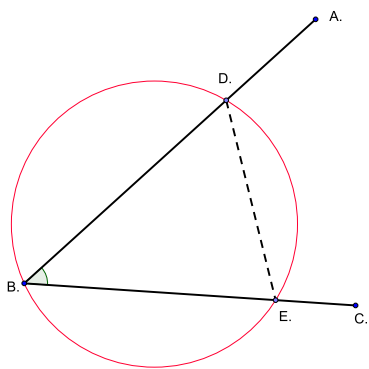


Comments:

Given a rectilinear angle and a straight line we can construct a segment with that angle in it.

This is done by making a triangle with that meeting the segment, and then circumscribing a circle around the triangle.

Thus the segment (shown in the picture as BDE) has been created.



Q.E.F.