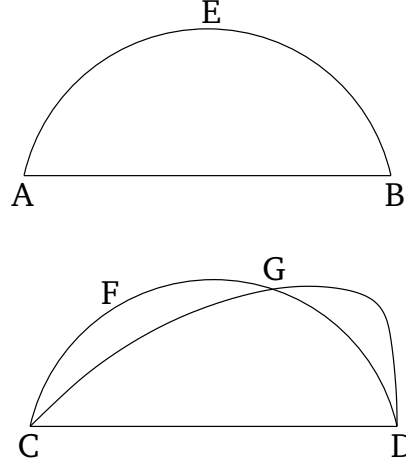


Book 3

Proposition 24

Similar segments of circles on equal straight-lines are equal to one another.



For let AEB and CFD be similar segments of circles on the equal straight-lines AB and CD (respectively). I say that segment AEB is equal to segment CFD .

For if the segment AEB is applied to the segment CFD , and point A is placed on (point) C , and the straight-line AB on CD , then point B will also coincide with point D , on account of AB being equal to CD . And if AB coincides with CD then the segment AEB will also coincide with CFD . For if the straight-line AB coincides with CD , and the segment AEB does not coincide with CFD , then it will surely either fall inside it, outside (it),[†] or it will miss like CGD (in the figure), and a circle (will) cut (another) circle at more than two points. The very thing is impossible [Prop. 3.10]. Thus, if the straight-line AB is applied to CD , the segment AEB cannot not also coincide with CFD . Thus, it will

coincide, and will be equal to it [C.N. 4].

Thus, similar segments of circles on equal straight-lines are equal to one another. (Which is) the very thing it was required to show.