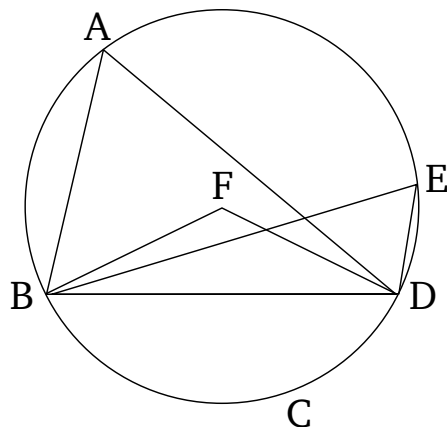


# Book 3

## Proposition 21

In a circle, angles in the same segment are equal to one another.



Let  $ABCD$  be a circle, and let  $BAD$  and  $BED$  be angles in the same segment  $BAED$ . I say that angles  $BAD$  and  $BED$  are equal to one another.

For let the center of circle  $ABCD$  have been found [Prop. 3.1], and let it be (at point)  $F$ . And let  $BF$  and  $FD$  have been joined.

And since angle  $BFD$  is at the center, and  $BAD$  at the circumference, and they have the same circumference base  $BCD$ , angle  $BFD$  is thus double  $BAD$  [Prop. 3.20]. So, for the same (reasons),  $BFD$  is also double  $BED$ . Thus,  $BAD$  (is) equal to  $BED$ .

Thus, in a circle, angles in the same segment are equal to one another. (Which is) the very thing it was required to show.