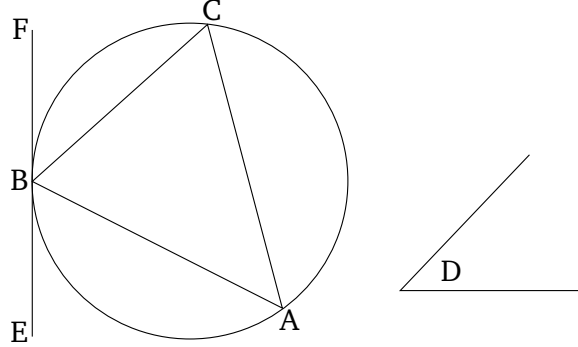


Book 3

Proposition 34

To cut off a segment, accepting an angle equal to a given rectilinear angle, from a given circle.



Let ABC be the given circle, and D the given rectilinear angle. So it is required to cut off a segment, accepting an angle equal to the given rectilinear angle D , from the given circle ABC .

Let EF have been drawn touching ABC at point B .[†] And let (angle) FBC , equal to angle D , have been constructed on the straight-line FB , at the point B on it [Prop. 1.23].

Therefore, since some straight-line EF touches the circle ABC , and BC has been drawn across (the circle) from the point of contact B , angle FBC is thus equal to the angle constructed in the alternate segment BAC [Prop. 1.32]. But, FBC is equal to D . Thus, the (angle) in the segment BAC is also equal to [angle] D .

Thus, the segment BAC , accepting an angle equal to the given rectilinear angle D , has been cut off from the given circle ABC . (Which is) the very thing it was required to do.