Proposition III.30

To bisect a given circumference.

Let $ADB$ be the given circumference which is to be bisected. Let $C$ be the midpoint of $AB$ and suppose $DC$ is perpendicular to $AB$. Draw $AD$ and $DB$.

Then $AC = CB$ and $CD$ is common and $\angle DCA = \angle DCB = \perp$. Therefore, we have $AD = DB$. [I.4] Then the arcs $AD$ and $DB$ are equal, [III.28] so the arc $ADB$ has been bisected. Q.E.F.