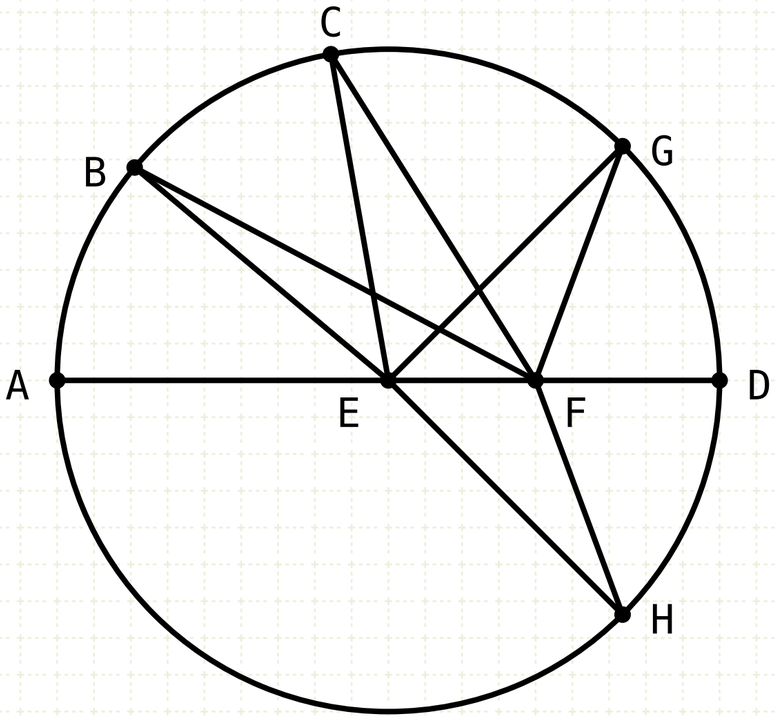
Euclid's Elements

Book III



A circle is a round straight line with a hole in the middle.

Mark Twain

quoting a schoolchild in "-English as She Is Taught-"

If people stand in a circle long enough, they'll eventually begin to dance.

George Carlin, Napalm and Silly Putty (2001)

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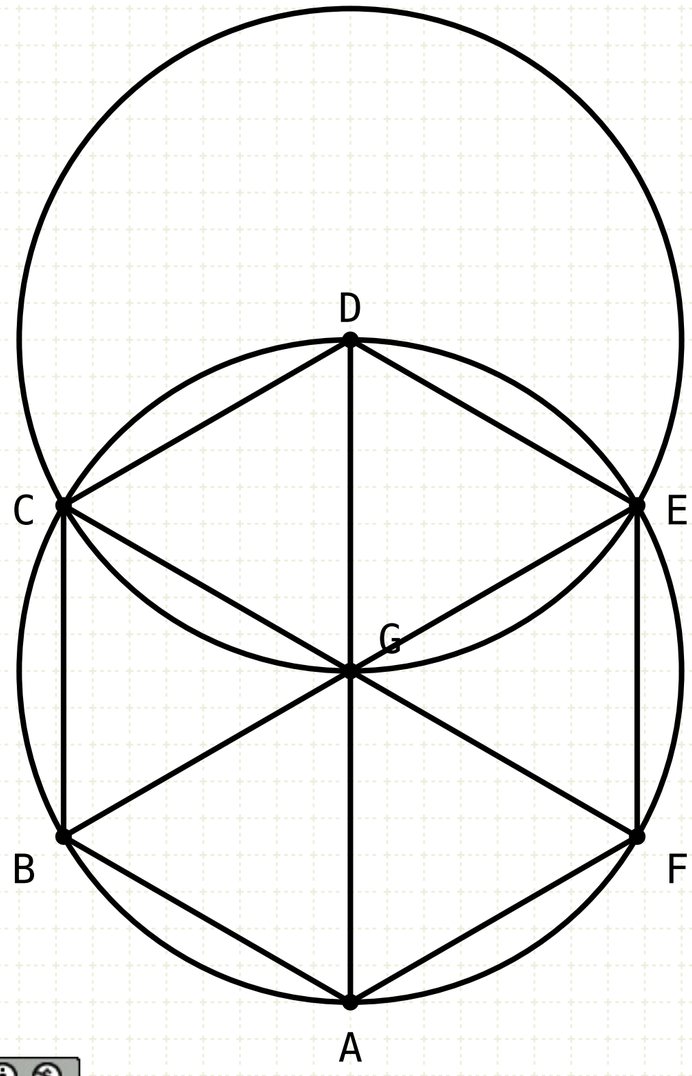
Proposition 1 of Book IV

Into a given circle to fit a straight line equal to a given straight line which is not greater than the diameter of the circle.

Euclid's Elements

Book IV



Philosophy (nature) is written in that great book which ever is before our eyes -- I mean the universe -- but we cannot understand it if we do not first learn the language and grasp the symbols in which it is written. The book is written in mathematical language, and the symbols are triangles, circles and other geometrical figures, without whose help it is impossible to comprehend a single word of it - without which one wanders in vain through a dark labyrinth.

Galileo Galilei

Proposition 1 of Book IV

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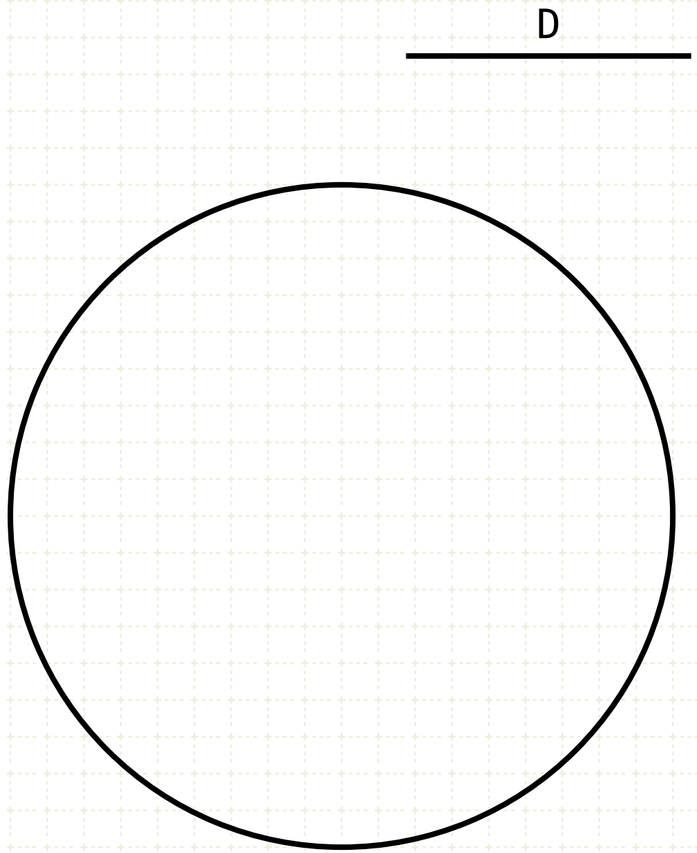

In other words

Given a circle and a straight line D,

where D is less than the diameter of the circle

draw another line, with the same length as D, in the circle such that the two ends touch the circumference of the circle

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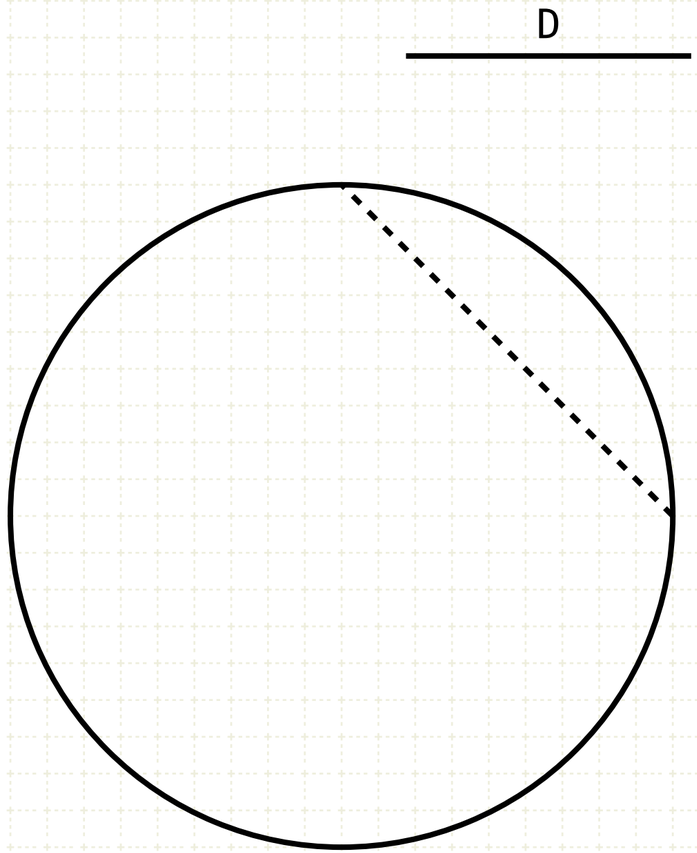

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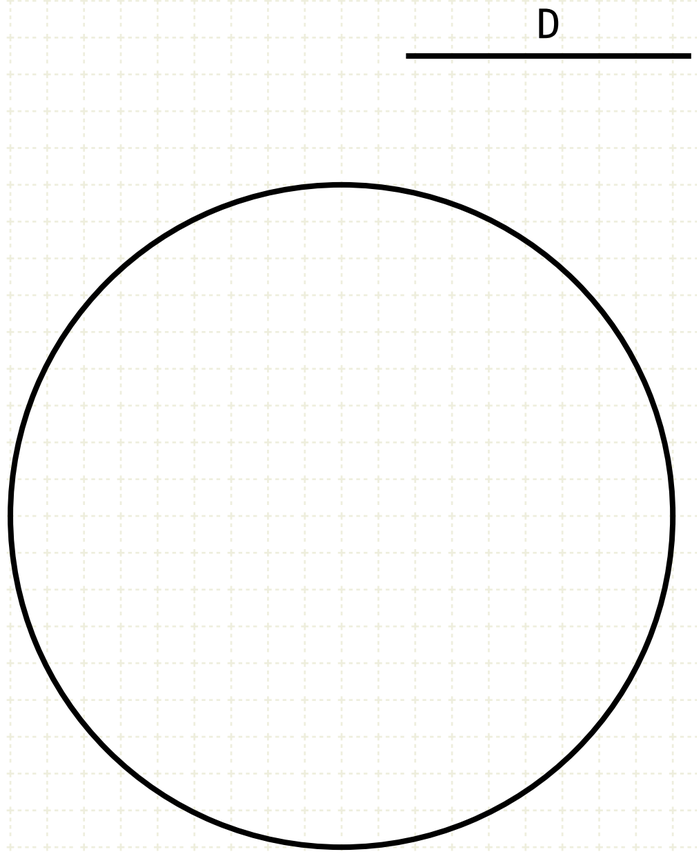

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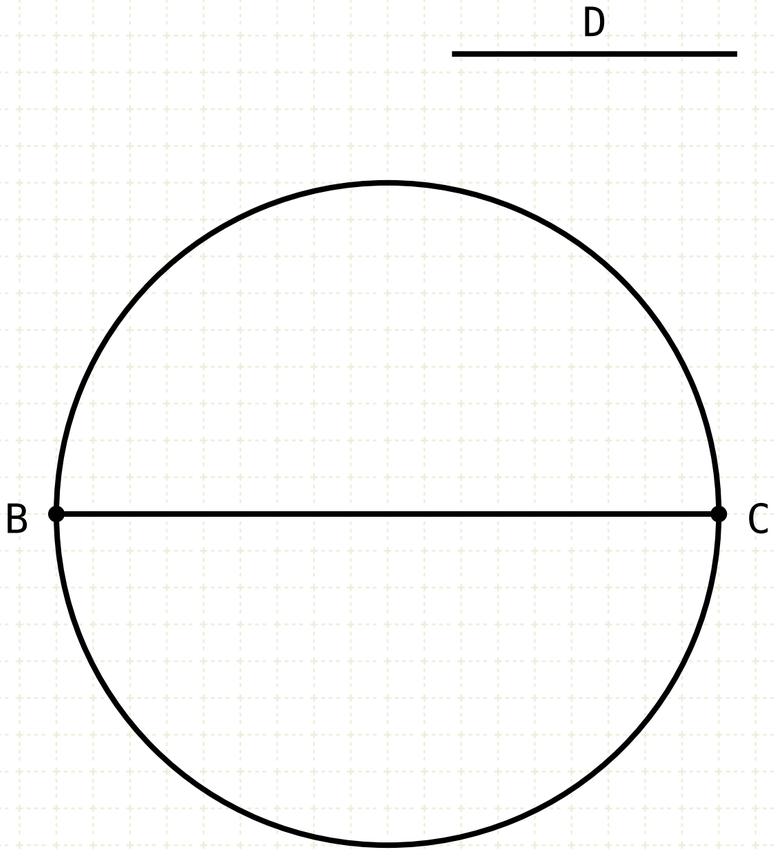

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Draw the diameter of the circle BC (III·1)

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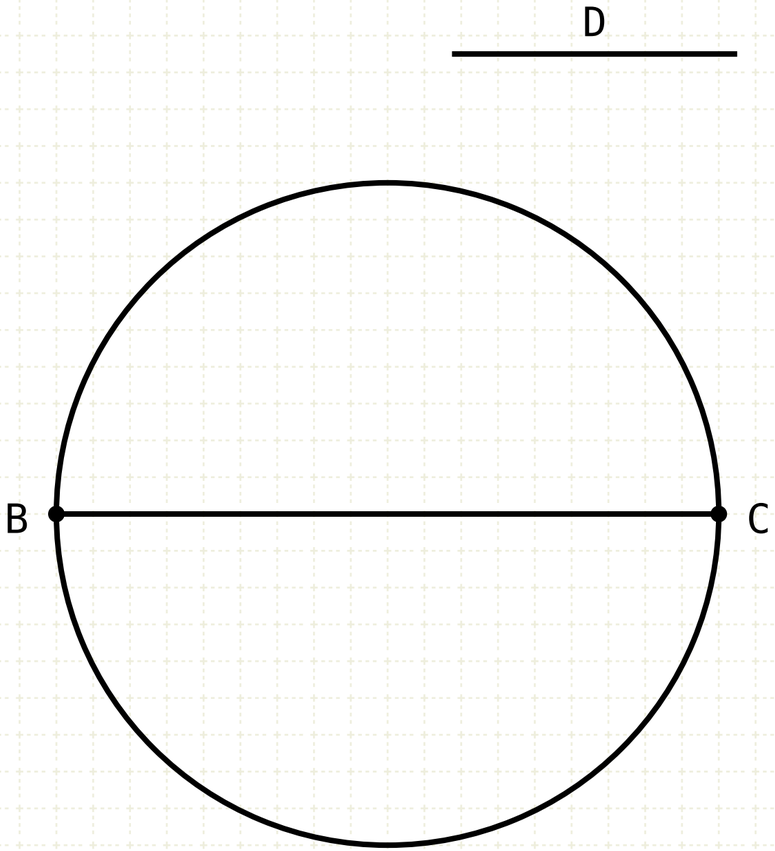

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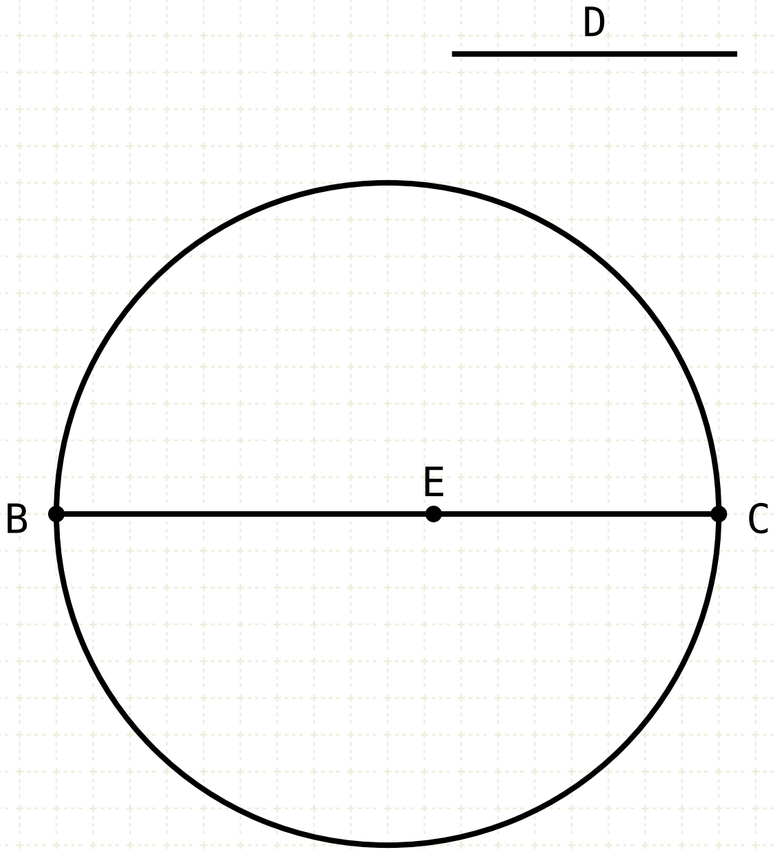

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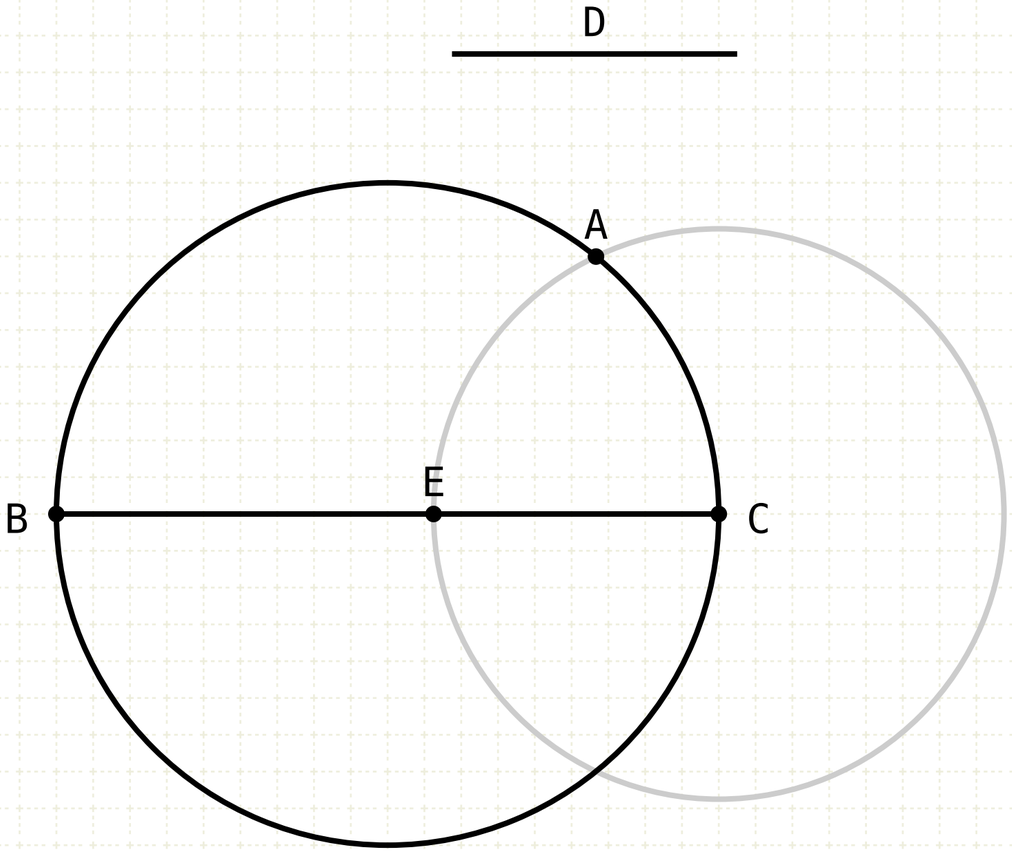

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Label the intersection A

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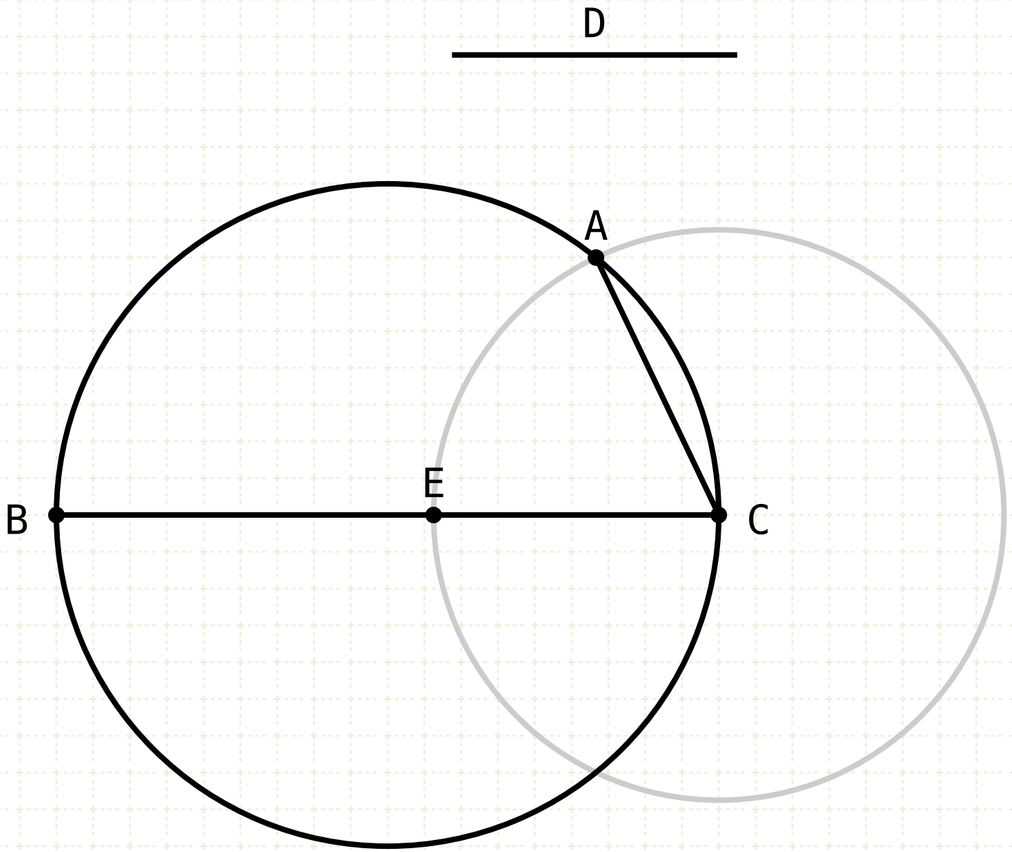

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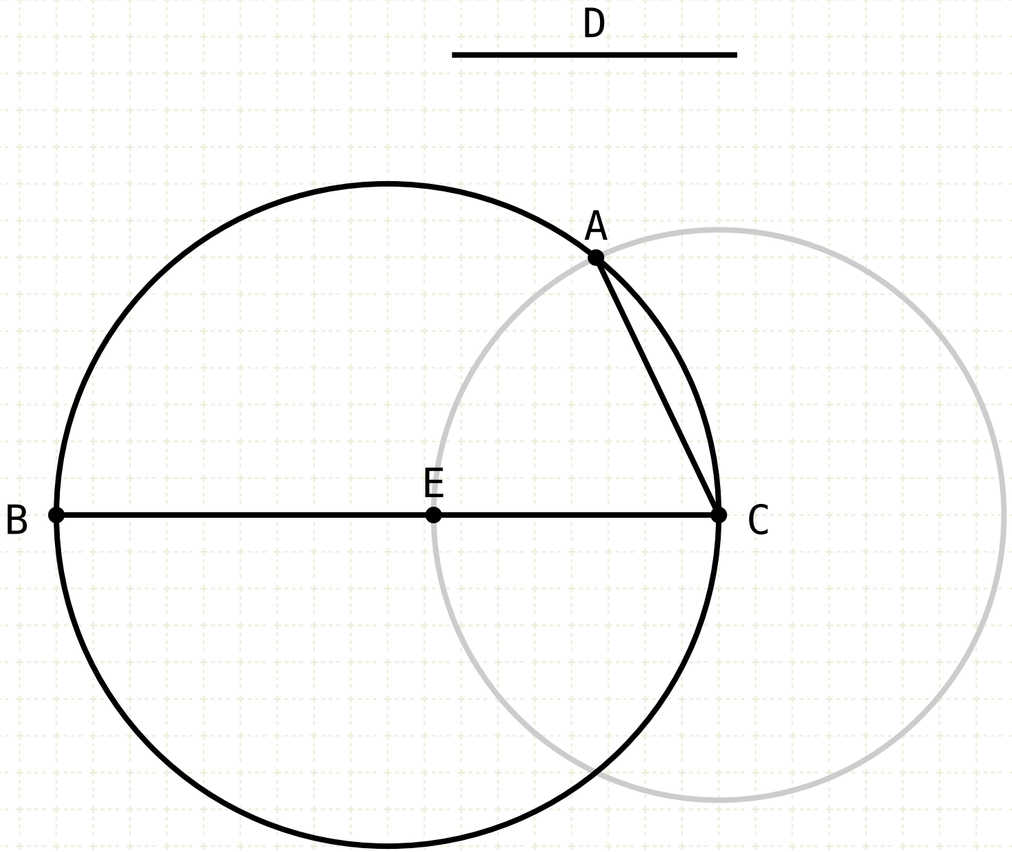

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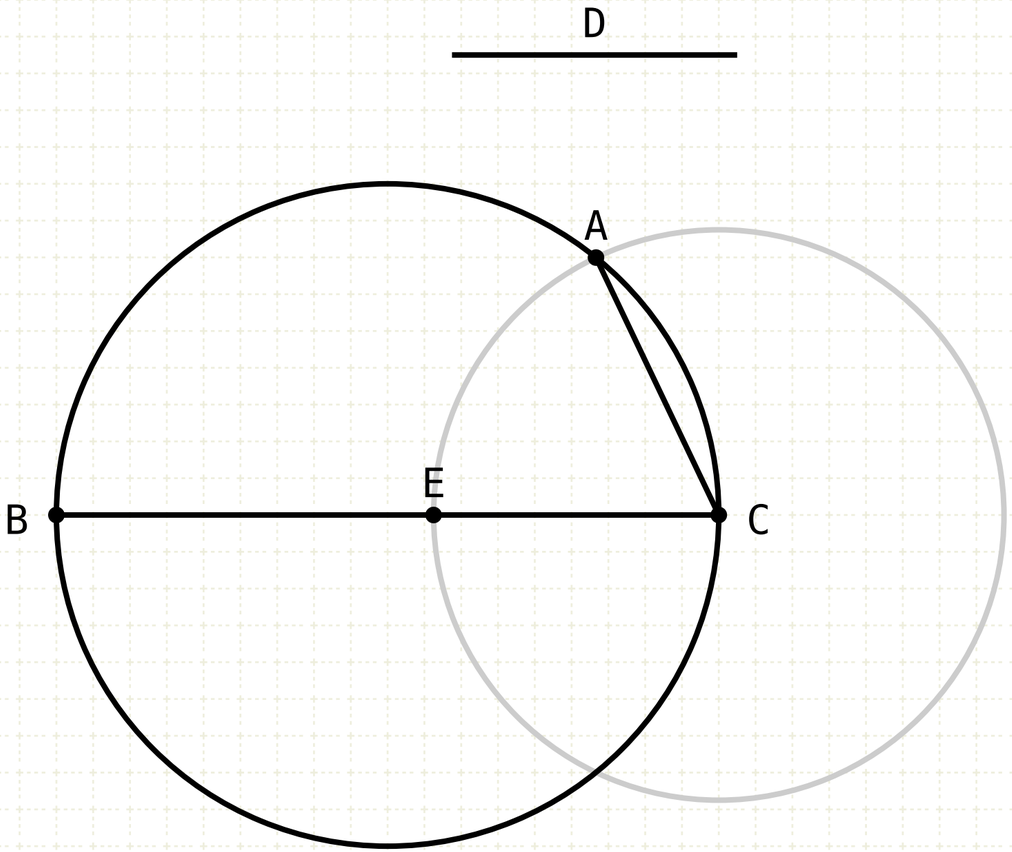

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Proof

By construction, CE equals D

CE equals AC since they are both radii of the same circle

Hence, AC equals D

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