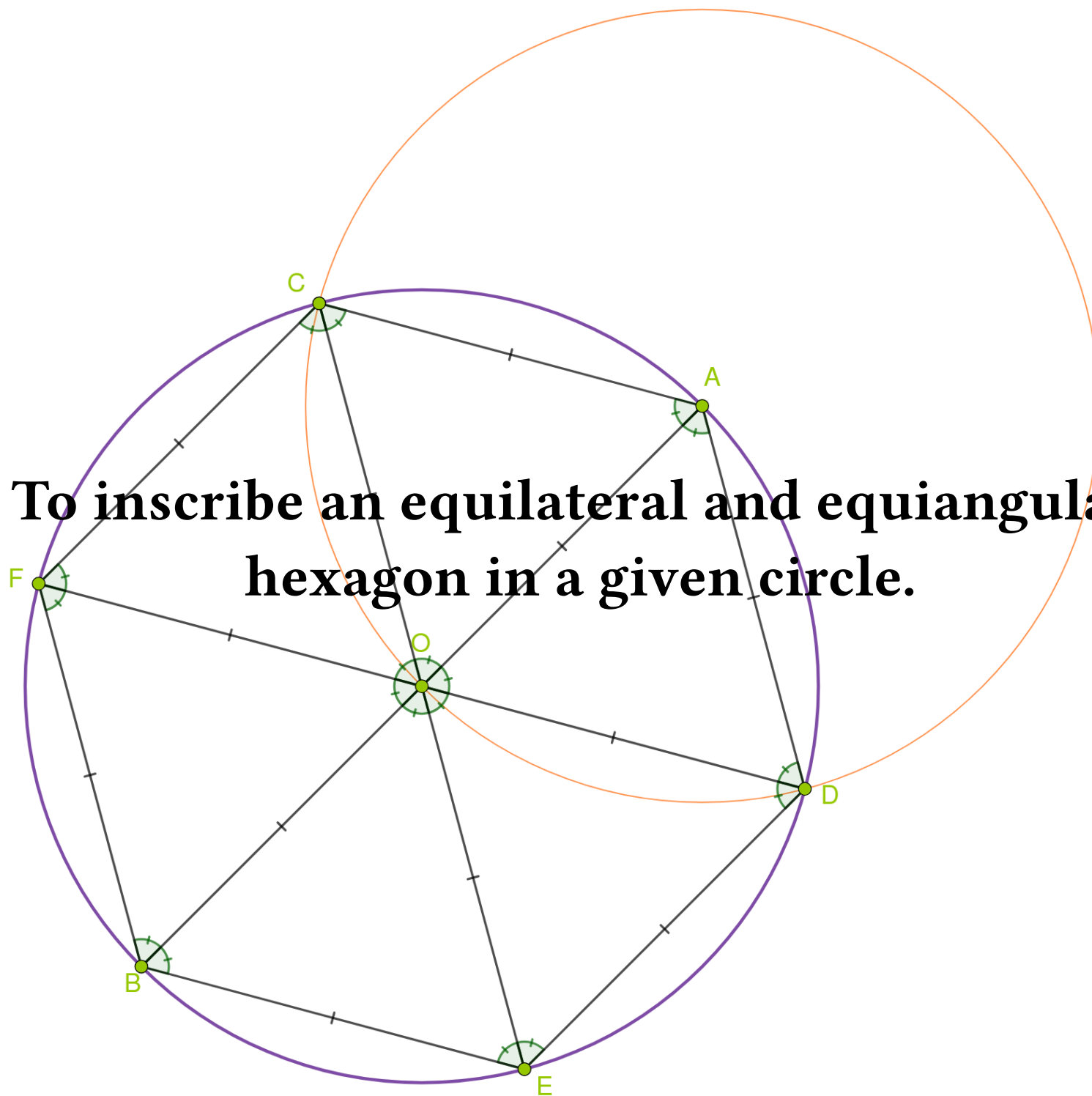


To inscribe an equilateral and equiangular hexagon in a given circle.



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Construction

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Construction (cont.)

As angle COA equals angle AOD , by I.13, angles FOC , COA , and AOD are equal to one another.

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Construction (cont.)

As angle COA equals angle AOD , by I.13, angles FOC , COA , and AOD are equal to one another. Therefore, by vertical angles, angles FOC , COA , AOD , DOE , EOB , and BOF are equal.

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Construction (cont.)

As angle COA equals angle AOD , by I.13, angles FOC , COA , and AOD are equal to one another. Therefore, by vertical angles, angles FOC , COA , AOD , DOE , EOB , and BOF are equal. By SAS, it follows that triangles FOC , COA , AOD , DOE , EOB and BOF are congruent.

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As angle COA equals angle AOD , by I.13, angles FOC , COA , and AOD are equal to one another. Therefore, by vertical angles, angles FOC , COA , AOD , DOE , EOB , and BOF are equal. By SAS, it follows that triangles FOC , COA , AOD , DOE , EOB and BOF are congruent. Thus, sides AC , CF , FB , BE , ED and DA equal one another, and angles DAC , ACF , CFB , FBE , BED and EDA equal one another.

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Construction (cont.)

As angle COA equals angle AOD , by I.13, angles FOC , COA , and AOD are equal to one another. Therefore, by vertical angles, angles FOC , COA , AOD , DOE , EOB , and BOF are equal. By SAS, it follows that triangles FOC , COA , AOD , DOE , EOB and BOF are congruent. Thus, sides AC , CF , FB , BE , ED and DA equal one another, and angles DAC , ACF , CFB , FBE , BED and EDA equal one another. Consequently, we have inscribed an equilateral and equiangular hexagon in a given circle.