Construct a regular decagon inscribed in a circle.

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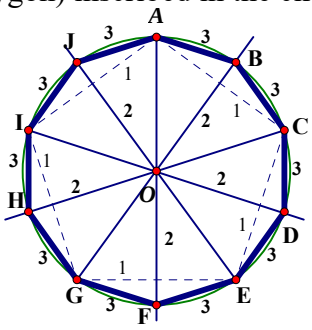
Given a circle with centre at *O*. To contruct a regular decagon (regular 10-sided polygon) inscribed in the circle.



Construction steps:

(1) Contruct a regular pentagon *ACEGI* inscribed in a circle..

(2) Join *AO* and produce to cut the circle again at *F*.

Join *CO* and produce to cut the circle again at *H*.

Join *EO* and produce to cut the circle again at *J*.

Join *GO* and produce to cut the circle again at *B*.

Join *IO* and produce to cut the circle again at *D*.

(3) Join *AB*, *BC*, *CD*, *DE*, *EF*, *FG*, *GH*, *HI*, *IJ* and *JA*.

Then *ABCDEFGHIJ* is the required regular decagon. Proof omitted.

Using a similar method, we can construct a regular 20-sided polygon, regular 40-sided polygon,⋯, regular 5×2^n-gon ($n \geq 1$) inscribed in a circle.