Construct a regular dodecagon inscribed in a circle.

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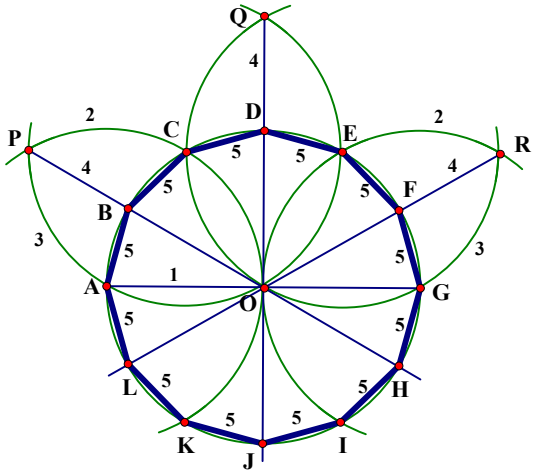
Given a circle with centre at O. To contruct a regular dodecagon (regular 12-sided polygon) inscribed in the circle.



Construction steps:

(1) Contruct the diameter AOG.

(2) Draw an arc $\odot(A, AO)$, cutting the circle at C and K as shown.

Draw an arc $\odot(G, GO)$, cutting the circle at E and I as shown.

(3) Draw an arc $\odot(C, CO)$, cutting the arc $\odot(A, AO)$ at P.

Draw an arc $\odot(E, EO)$, cutting the arc $\odot(G, GO)$ at R.

The two arcs $\odot(C, CO)$ and $\odot(E, EO)$ intersect at Q and O.

(4) Join PO and produce to cut the circle again at H.

Join QO and produce to cut the circle again at J.

Join RO and produce to cut the circle again at L.

(5) Join AB, BC, CD, DE, EF, FG, GH, HI, IJ, JK, KL and LA.

Then $ABCDEFGHIJKL$ is the required regular dodecagon. Proof omitted.

Using a similar method, we can construct a regular 24-sided polygon, regular 48-sided polygon,⋯, regular 3×2^n-gon ($n \geq 1$) inscribed in a circle.