Construct a square inscribed in a circle.
HKMO 2017 heat events contruction Q1
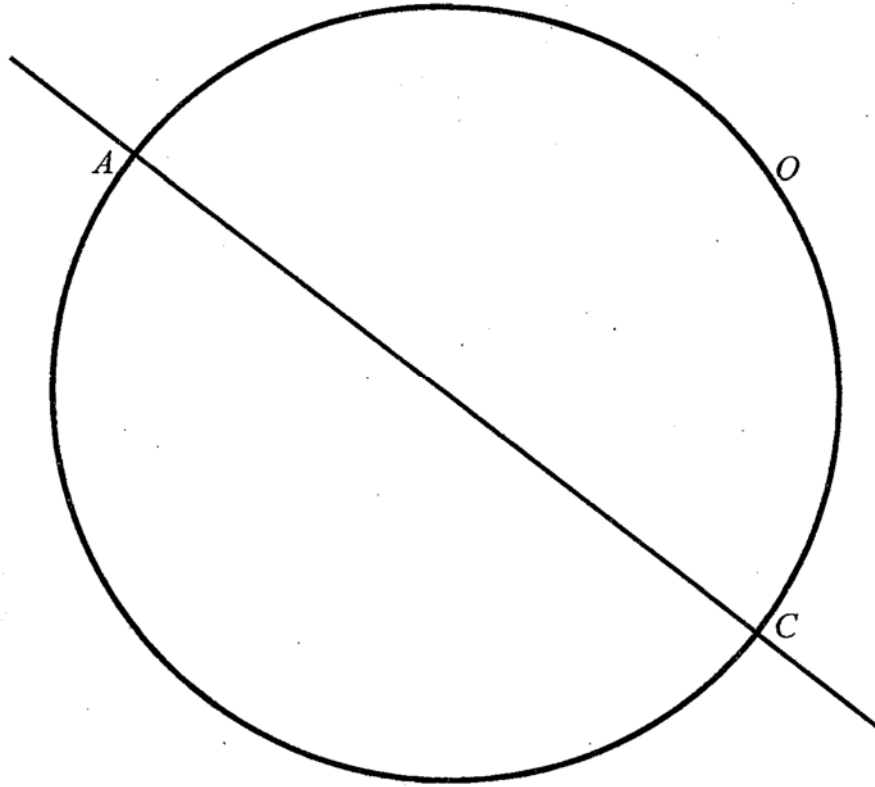
Created by Mr. Francis Hung on 20220623. Last updated: 23/06/2022

如下圖，已知一圓 *O* 的其中一條直徑為 *AC*。

求作圓上兩點 *B*、*D* 使得 *ABCD* 成為一個正方形。

As shown in the figure below, given that *O* is a circle with a diameter *AC*.

Construct two points *B*, *D* on the circle such that *ABCD* form a square.

作圖方法如下(圖一)：

(1)　作 *AC* 的垂直平分綫，交圓 *O* 於 *B* 及 *D*。
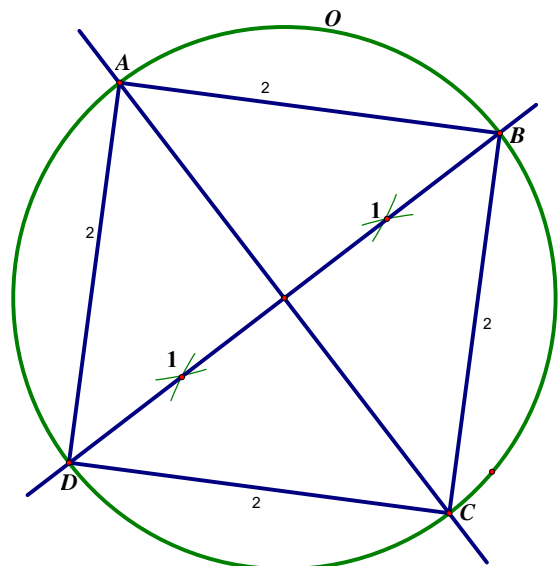
(2)　連接 *AB*、*BC*、*CD* 及 *DA*。

ABCD 便是所需的正方形，作圖完畢。

證明從略。

Construction steps (Figure 1)

(1)　Contruct the perpendicular bisector of *AC*, intersecting the circle *O* at *B* and *D*.

(2)　Join *AB*, *BC*, *CD* and *DA*.

ABCD is the required square. Proof omitted.

圖一　(Figure 1)