

**Hong Kong Mathematics Olympiad 2018/19**

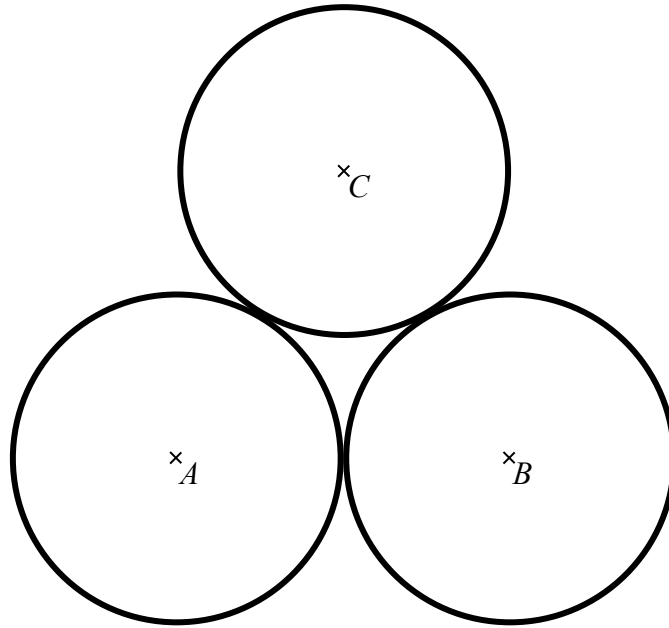
**Heats (Geometric Construction)**

**香港數學競賽 2018/19**

**初賽（幾何作圖）**

1. Figure 1 shows three circles with equal radius which are pairwise tangent to each other. Construct a circle which will touch each circle in the figure at a point.

圖一所示為三個半徑相等且兩兩相切的圓。試作一圓使得它與圖中每一圓相切於一點。



**Figure 1**

**圖一**

2. Figure 2 shows a square  $ABCD$  with side 1 unit. Construct a triangle  $APQ$ , in which  $P, Q$  lie on the line segments  $BC$  and  $CD$  respectively, and  $\angle PAB = \angle QAD = 15^\circ$ . Write down the type of triangle that  $APQ$  is.

圖二所示為一個邊長為 1 單位的正方形  $ABCD$ 。試作一個三角形  $APQ$ ，其中  $P$ 、 $Q$  分別位於線段  $BC$ 、 $CD$  上且  $\angle PAB = \angle QAD = 15^\circ$ 。寫出  $APQ$  是哪一類三角形。

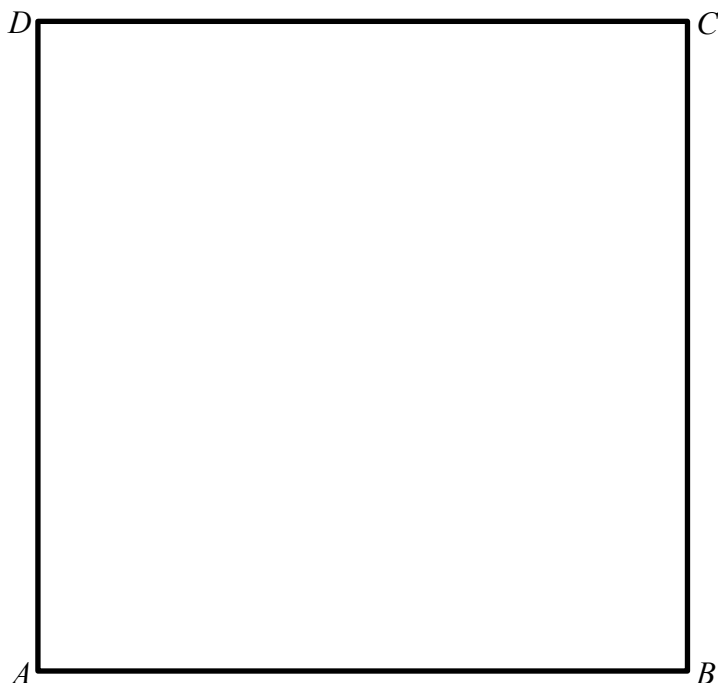
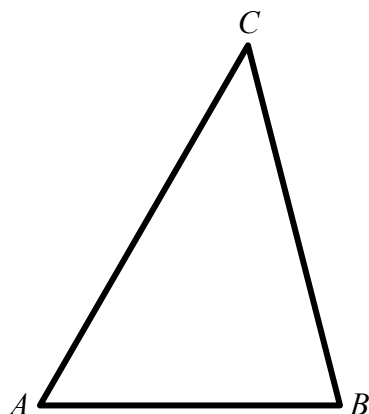


Figure 2

圖二

3. Figure 3 shows a triangle  $ABC$ . Use  $A$ ,  $B$  and  $C$  as centres to construct three circles respectively that are pairwise tangent to each other.

圖三所示為一個三角形  $ABC$ 。試以  $A$ 、 $B$  及  $C$  為圓心分別構作三個圓，使得它們兩兩相切。



**Figure 3**

圖三

***END***

完