

**Hong Kong Mathematics Olympiad 2013/14**

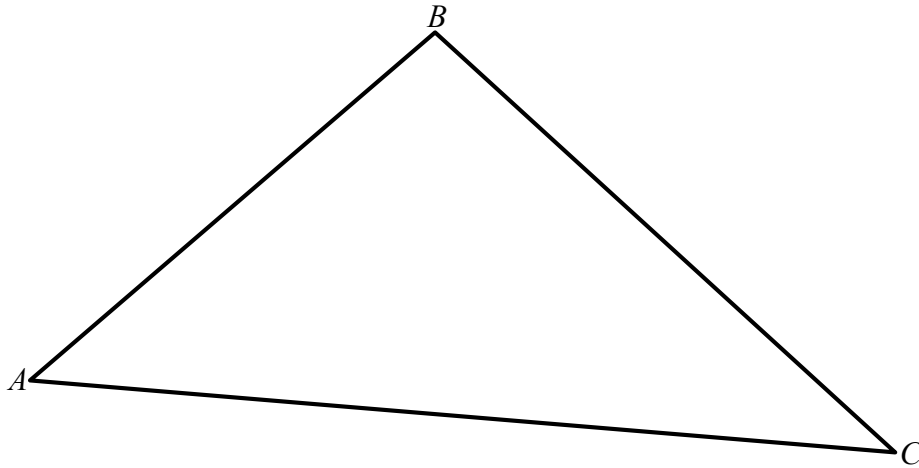
**Heat Event (Geometric Construction)**

**香港數學競賽 2013/14**

**初賽（幾何作圖）**

1. Figure 1 shows a  $\triangle ABC$ . Construct a circle with centre  $O$  inside the triangle such that the three sides of the triangle are tangents to the circle.

圖一所示為一個  $\triangle ABC$ 。試在該三角形內，構作一個圓心為  $O$  的圓，使三角形三條邊均為該圓的切線。



**Figure 1**

圖一



2. Figure 2 shows a rectangle  $PQRS$ . Construct a square of area equal to that of the rectangle.

圖二所示為一個長方形  $PQRS$ 。試構作一個面積與該長方形面積相等的正方形。



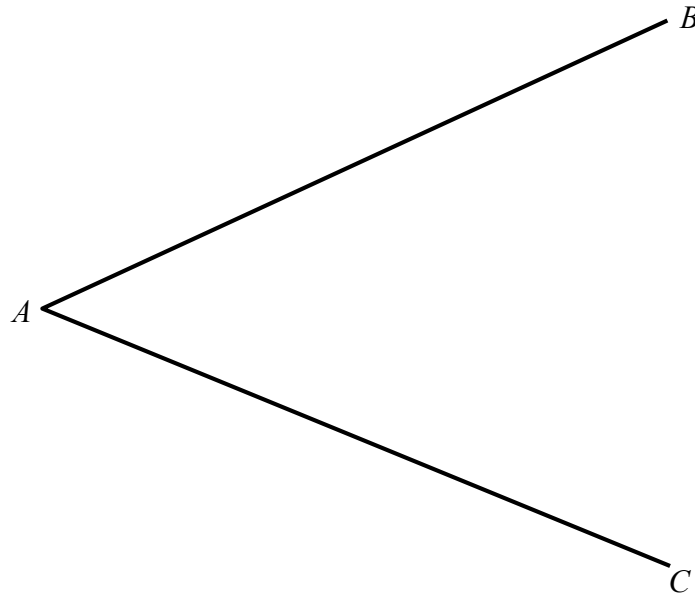
**Figure 2**  
圖二



3. Figure 3 shows two line segments  $AB$  and  $AC$  intersecting at the point  $A$ . Construct two circles of different sizes between them such that
- they touch each other at a point; and
  - the lines  $AB$  and  $AC$  are tangents to both circles.

圖三所示為兩相交於  $A$  點的線段  $AB$  及  $AC$ 。試在它們之間構作兩個大小不同的圓使得

- 該兩圓相交於一點；及
- 線段  $AB$  和  $AC$  均為該兩圓的切線。



**Figure 3**

**圖三**

**END**

**完**