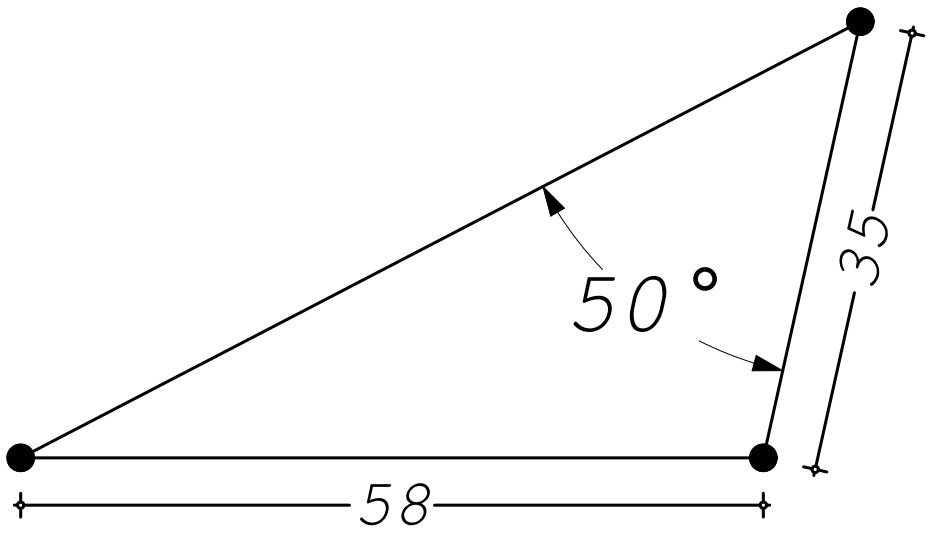
## **SECTION A**-Plane Geometry

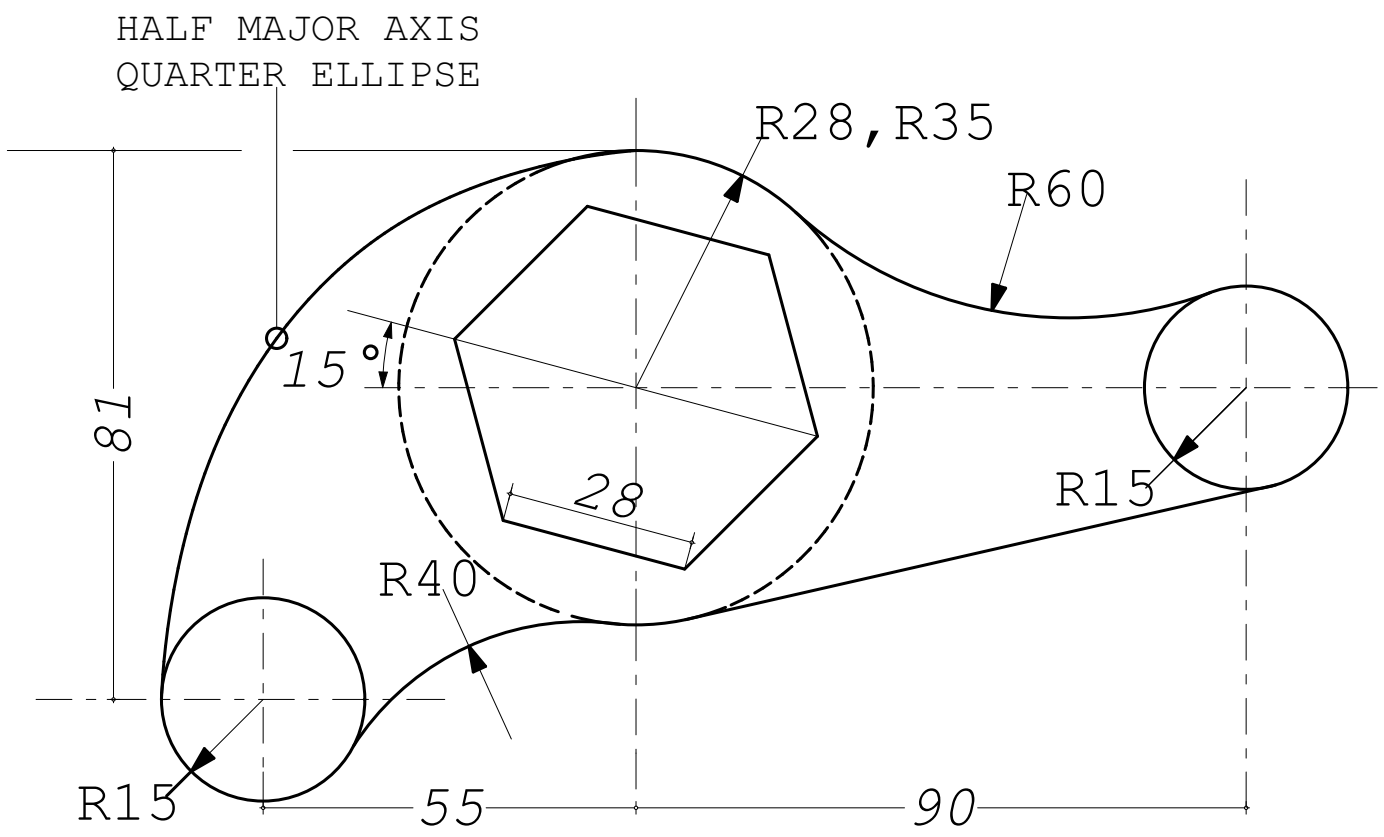
1ai. Construct the triangle shown in the **figure.1** below (10marks)




ii. **Circumscribe** a circle on the triangle above and state its **diameter** (3marks)

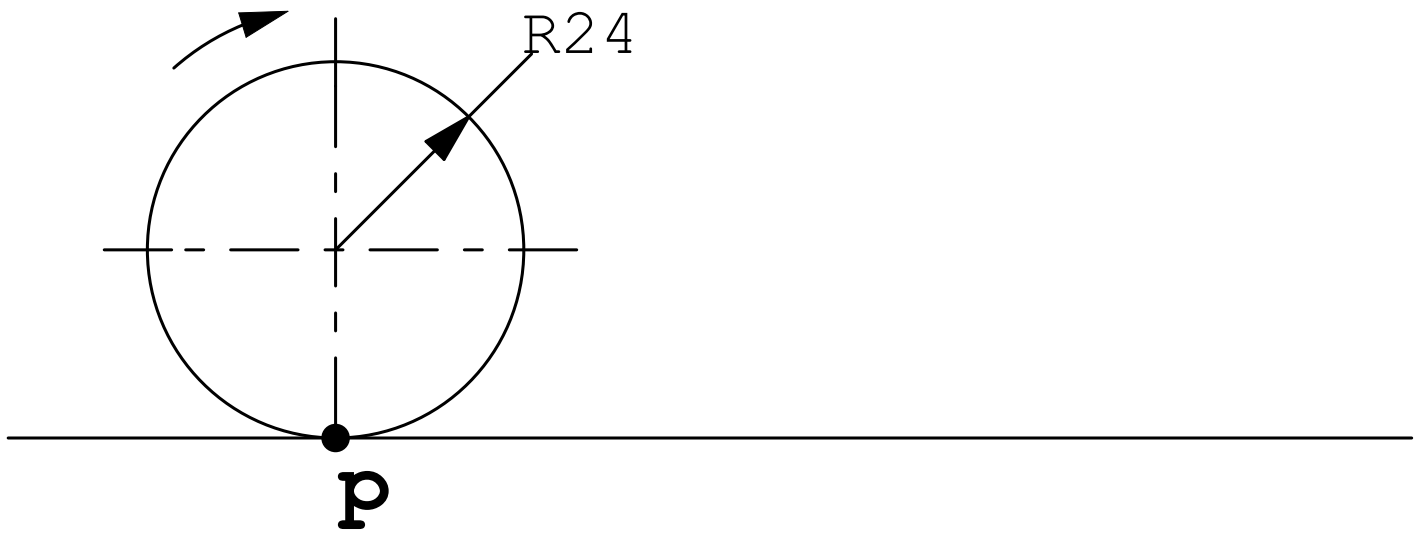
b. Construct a regular **pentagon** with sides 42mm and transform it to a **square** of equal area (12marks)

2a. Construct the **figure.2** below and label all centers of circular arcs with letter **C** (15marks)



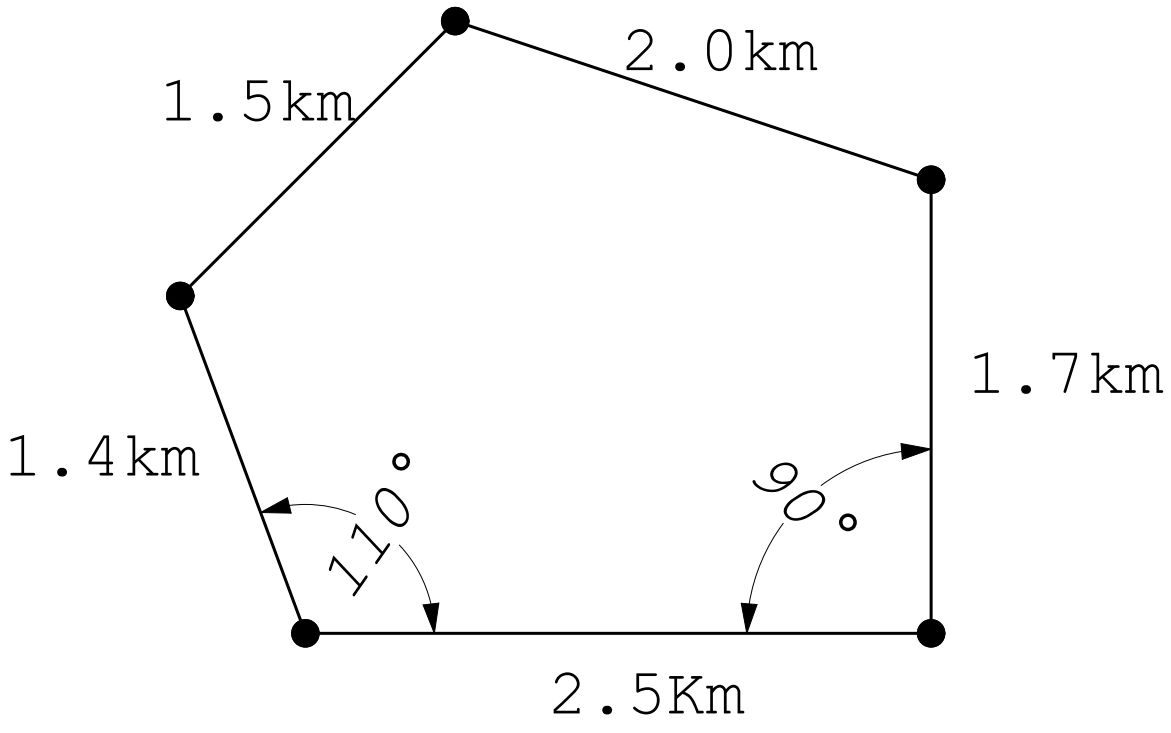

bi. Plot the locus of point **P** shown on the circular wheel for one revolution. (8marks)

ii. Name the locus in "**2bi**" (2marks)



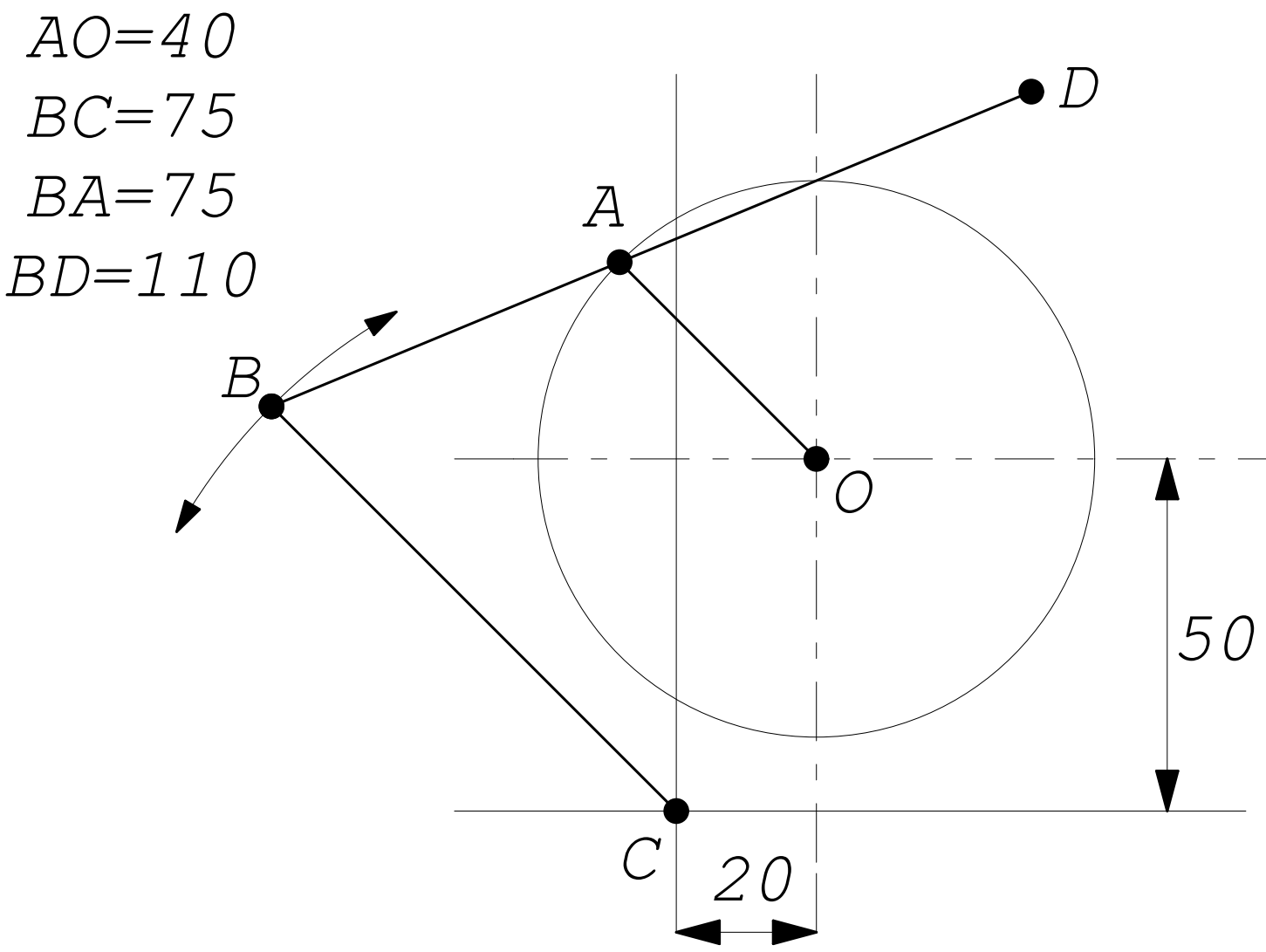
3ai. Construct a **plain scale** of 4cm to represent 1km, 4km long to read 100meters (10marks)

ii. Using the scale in "**3ai**" above construct the figure below (7marks)

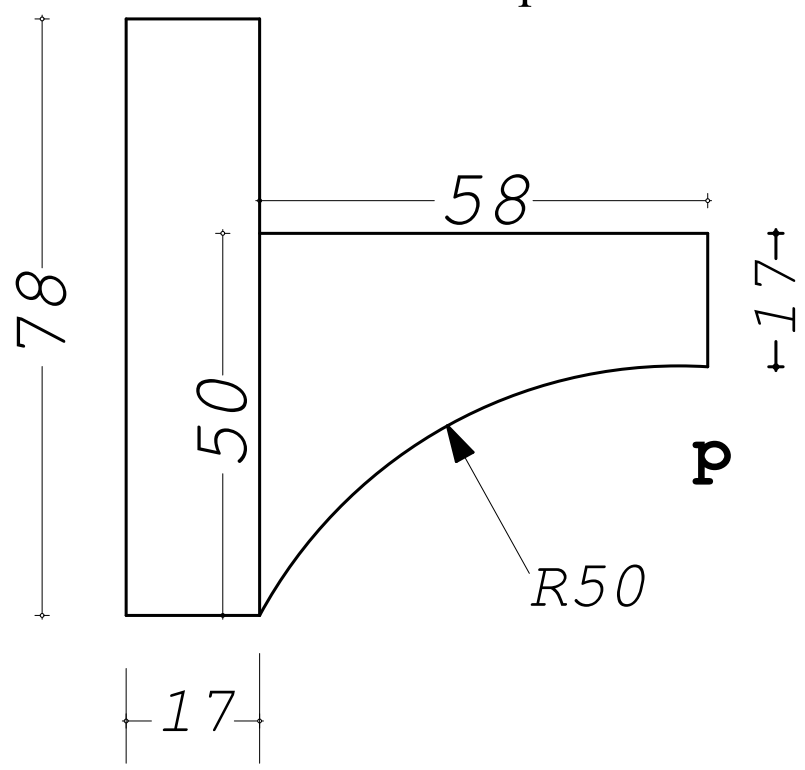



b. Construct a similar figure to that in "**3aii**" above with sides in the ratio 5:7 (8marks)

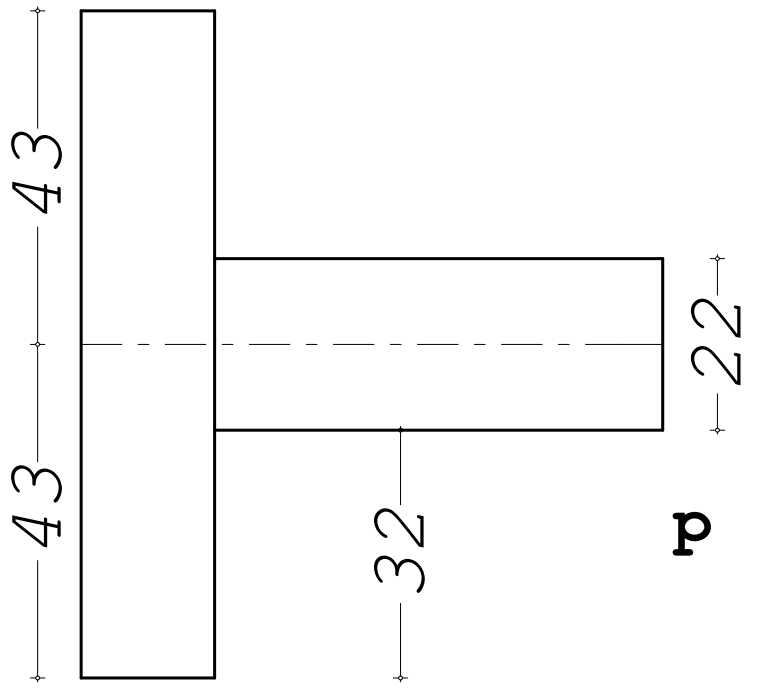
4. The figure shows a link mechanism in which the crank OA rotates anticlockwise about the fixed centre O and end A is pin-jointed to link BD. The link BC oscillates about the fixed center C. Plot the **locus of D** and state the **angle of oscillation** of BC. (25marks)

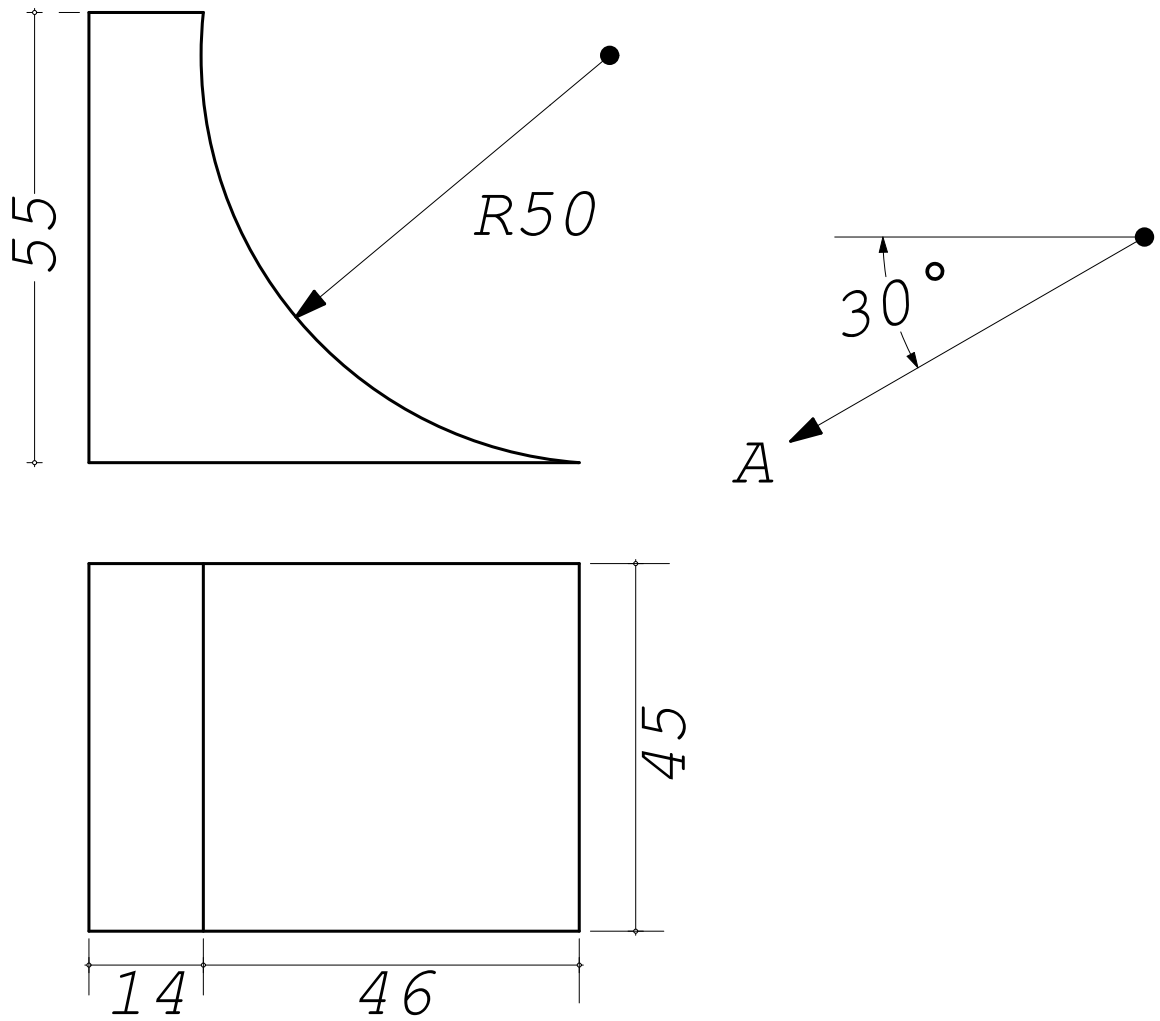


5. The figure below shows a metal block with its views drawn in 1st angle projection. Draw an isometric view with corner P as lowest point.

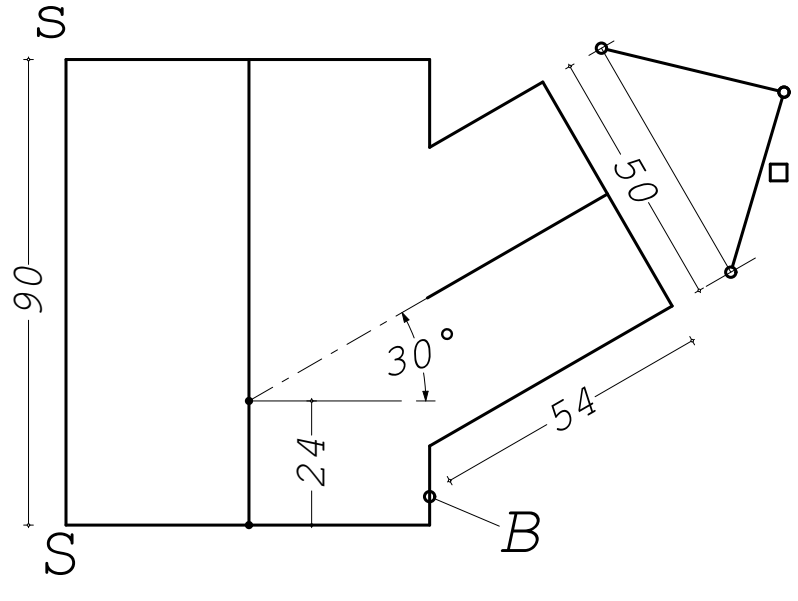


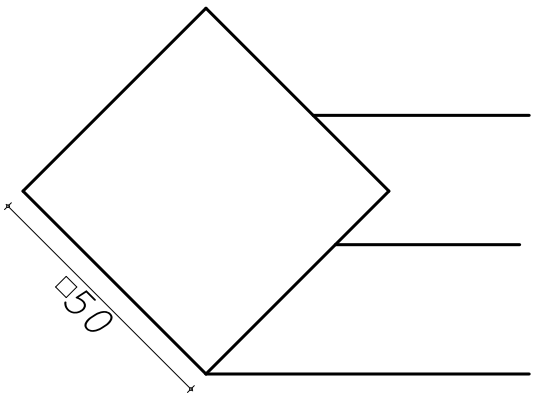

6. The figure below shows two views of a machined block drawn in first angle projection. Draw in first angle projection:
   - The given views
   - An auxiliary elevation in the direction of arrow A



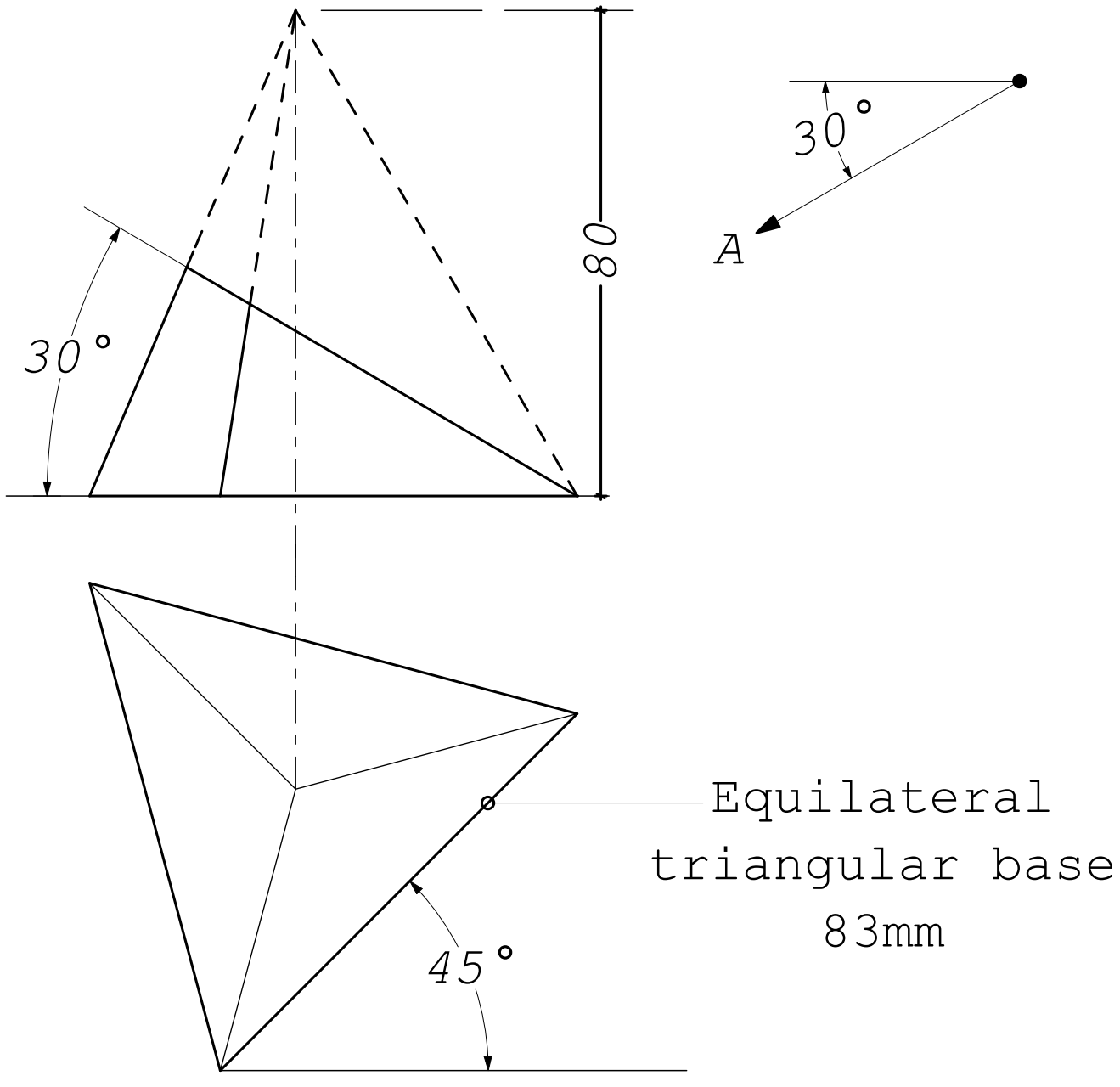



7. The figure shows two square based hollow prisms intersecting each other.
   a) Draw a complete front elevation & plan
   b) Draw the development of the Prism B with seam S-S




8. The figure shows a triangular based pyramid truncated as shown below.
   Draw full size:
   a) The given front elevation
   b) A complete plan
   c) An auxiliary plan taken in direction of arrow A
   d) project the true shape of the cut surface

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