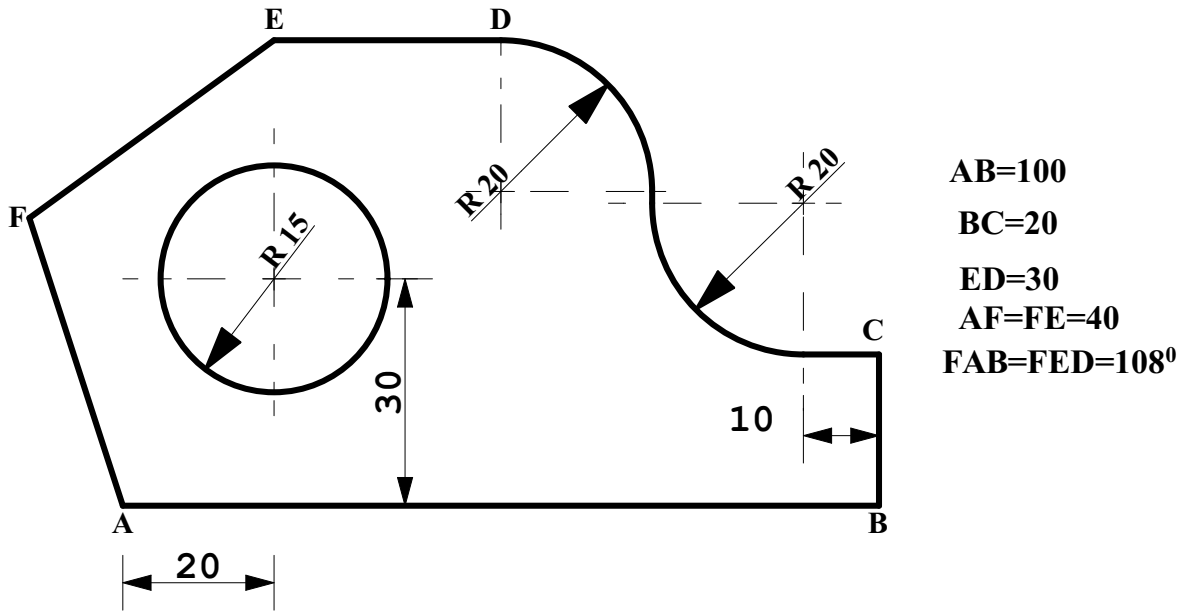
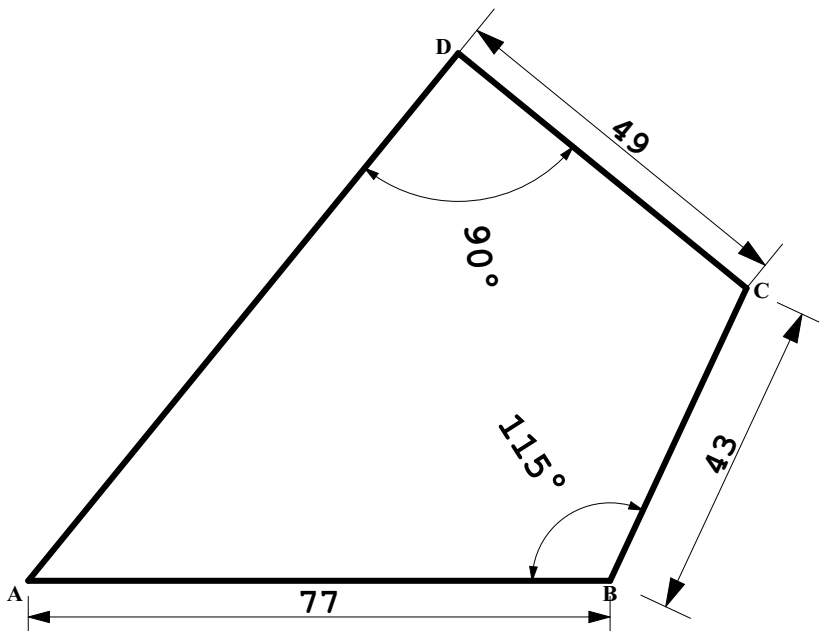


## SECTION A

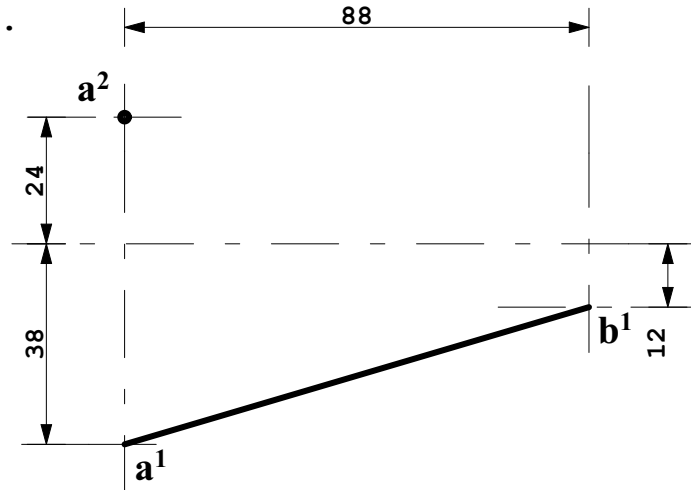
- 1.a(i) Construct a plain scale of representative fraction as 1:400 to show meters and decimeters, long enough to measure up to 60 meters. Measure a distance of 46m on the scale.
- (ii) Use the scale to construct a triangle ABC having, base AB of 20m, the side BC as 15m and vertical angle of  $50^\circ$  and escribe one side of the triangle.
- (b) (i) Copy the triangle in (ii) above and construct a similar one whose perimeter is 112mm.
- (ii) Construct the given figure and construct a similar one with its sides in the ratio of 3:5.



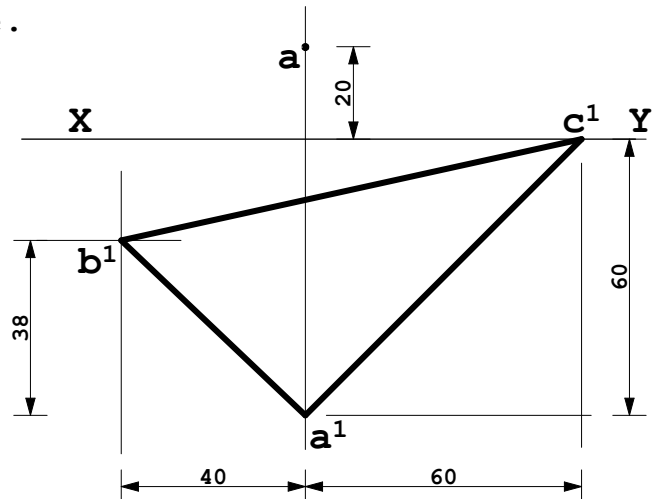
2. The figure below shows a quadrilateral ABCD;
- i) Construct the figure.
  - ii) Construct a circle to which passes through points C & D and it touches line AB.
  - iii) Determine the circumference of the circle in (ii) and hence construct a regular pentagon whose perimeter is equal to the circumference of the circle.
  - iv) Transform the pentagon in (iii) into a rectangle of length 80mm.



3.a) The elevation  $a^1b^1$  of a line  $AB$  is given. The end  $A$  is positioned in the plan at  $a^2$ . If the true length of the line is **118 mm**, complete the plan, find the traces of the line, and its true inclinations to the principal planes. Use third angle projection.

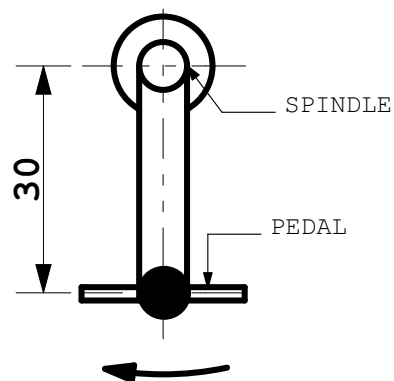
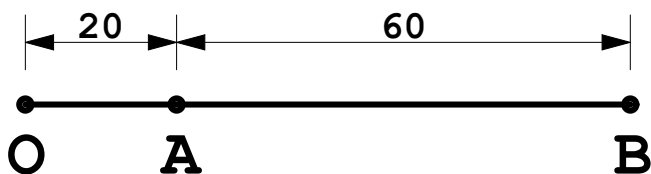


b) The figure below shows the plan of a lamina  $a'b'c'$  and part front elevation. Copy the figure and:  
 (i) Complete the front elevation if the true length of  $AB$  and  $AC$  is 70mm and 90mm respectively.  
 (ii) Construct the true shape of the lamina.  
 (iii) Determine and state the true angle of inclination of the lamina to the horizontal plane.



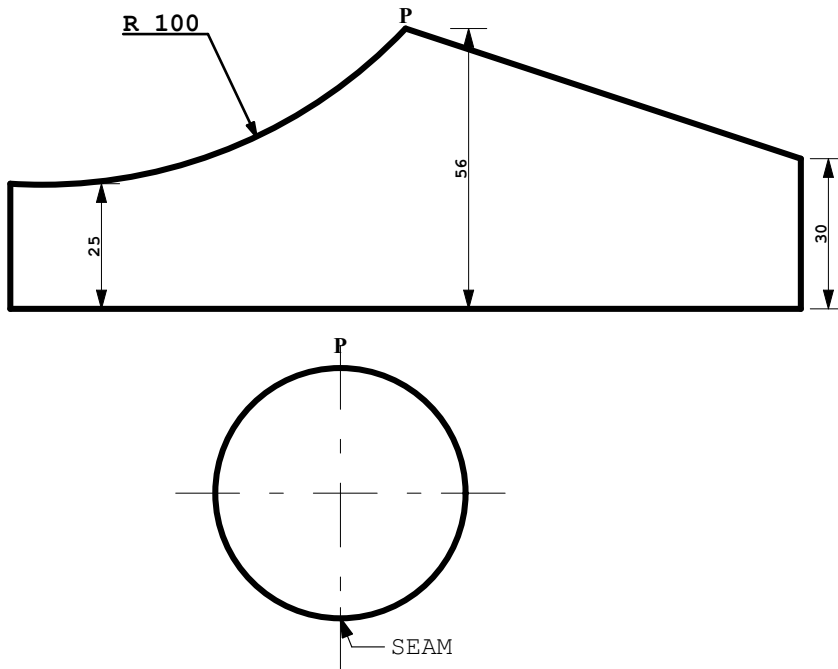
4. a) The figure shows a rod  $OA$  that turns anticlockwise about  $O$ . If a particle moves from  $A$  to  $B$  and back to  $A$  in  $\frac{1}{3}$ rd of a revolution of the rod. Trace the path taken by the particle in half a revolution of the rod.

b) A scaled drawing of one side of a bicycle pedal is shown. Draw the locus of the pedal end as the cyclist turns it through two revolutions, about the spindle, to cover a distance of **150mm** along the road.

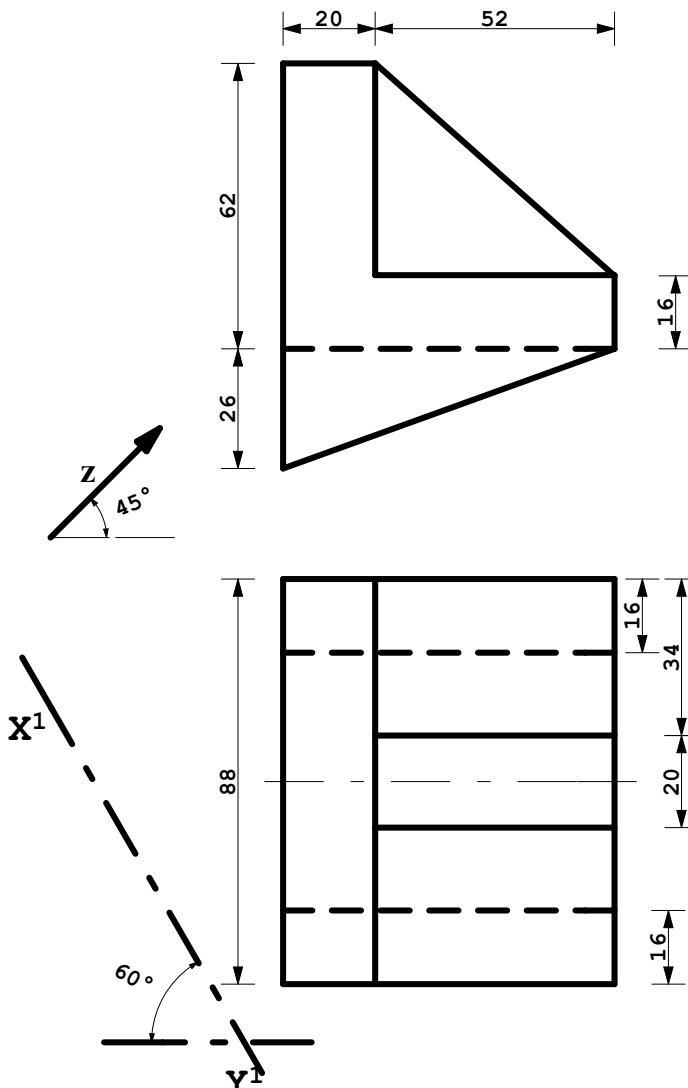


## SECTION B

5. The drawing shows the development of a cylindrical surface of a portion of 50mm diameter cylinder. Draw the given development accurately and use it to produce (in first angle projection) an elevation and end view of the incomplete cylinder.



6. Draw the given views full size and a first auxiliary plan on  $X^1Y^1$  and a first auxiliary elevation in direction of arrow **Z**.

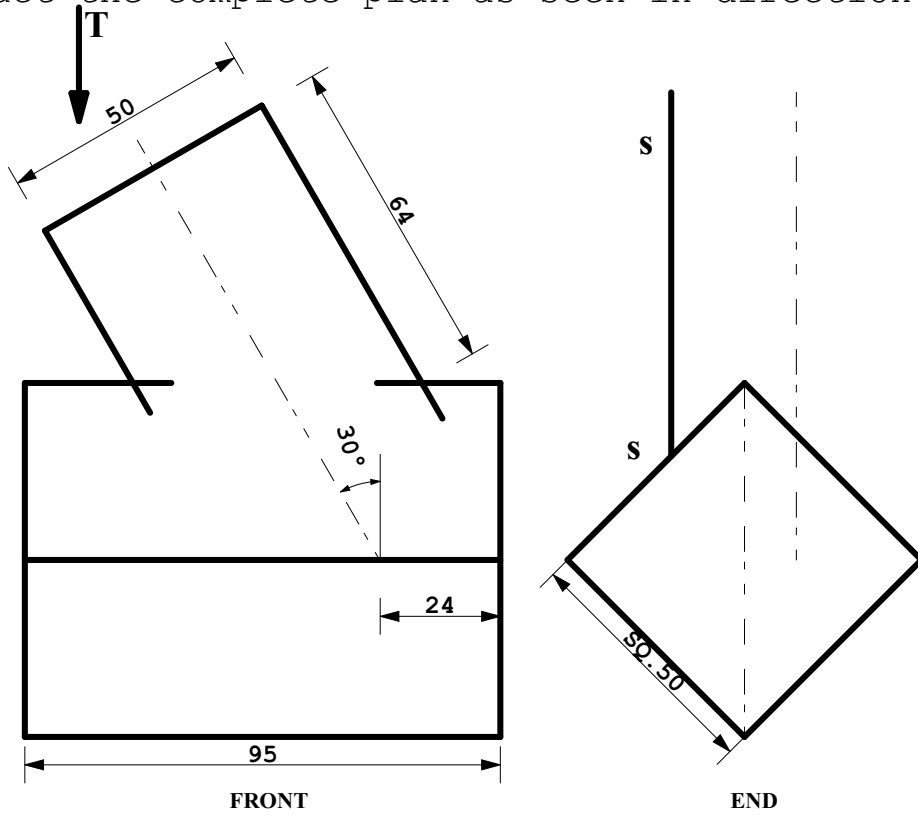


7. The figure shows square pipe being intersected by a cylinder.

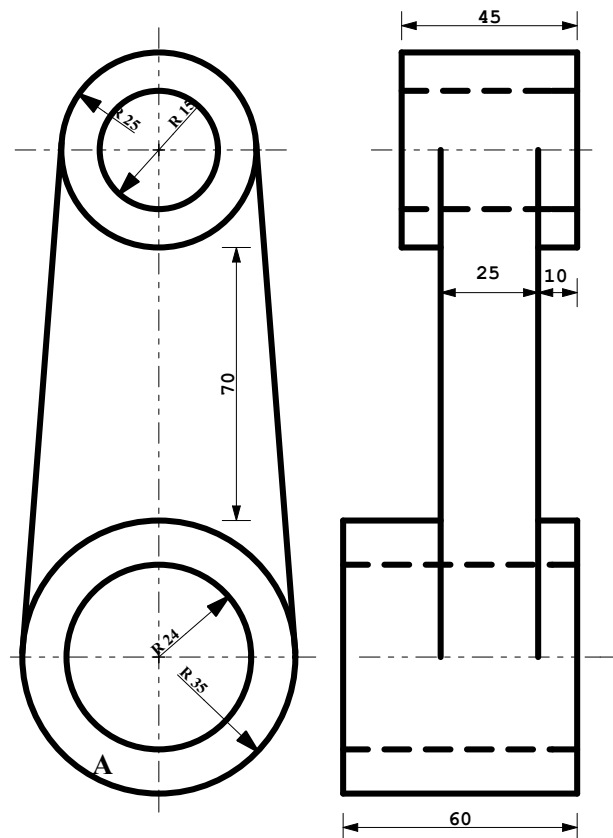
(a) Complete the front and the end view, in first angle projection with the curve of intersection.

(b) Construct the development of cylinder with the seam along SS.

(c) Construct the complete plan as seen in direction of arrow T.



8. The figure shows a plan and front elevation of a casting in third angle projection. Draw in Oblique projection, the casting having face A at the foreground.



END