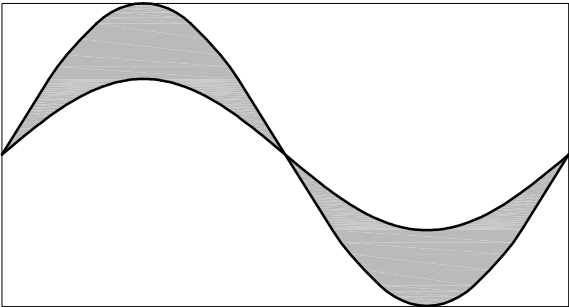


QUESTION No. 1

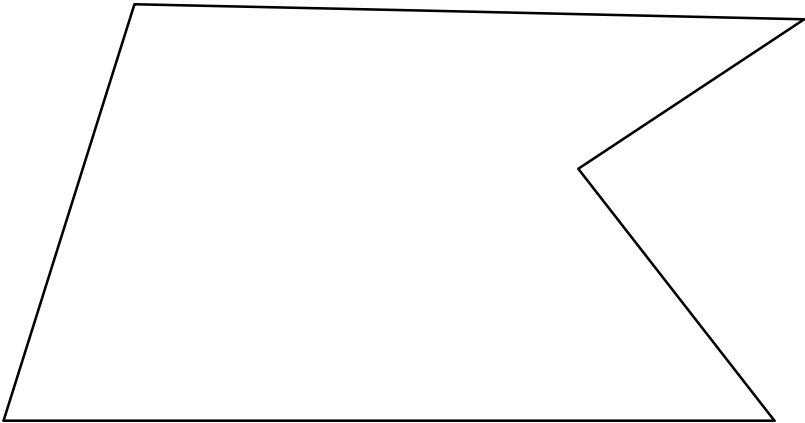
The pattern shown below is obtained by drawing two helices of the same pitch but different diameters. On the given centre lines, taking their point of intersection as the first point, draw 1 turn of a helix that has a diameter of 80mm and a pitch of 150mm. On the same centre line draw another helix having the same pitch and a diameter of 40mm. Shade as in figure below.

(15 marks)



QUESTION No. 2

Convert the given irregular polygon into a square of the same area. (15marks)

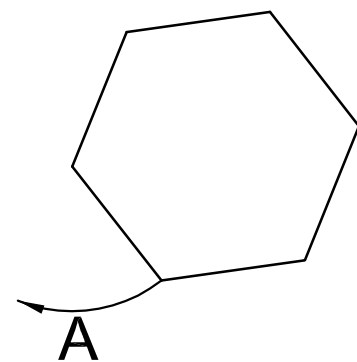


Length of side of the square is mm



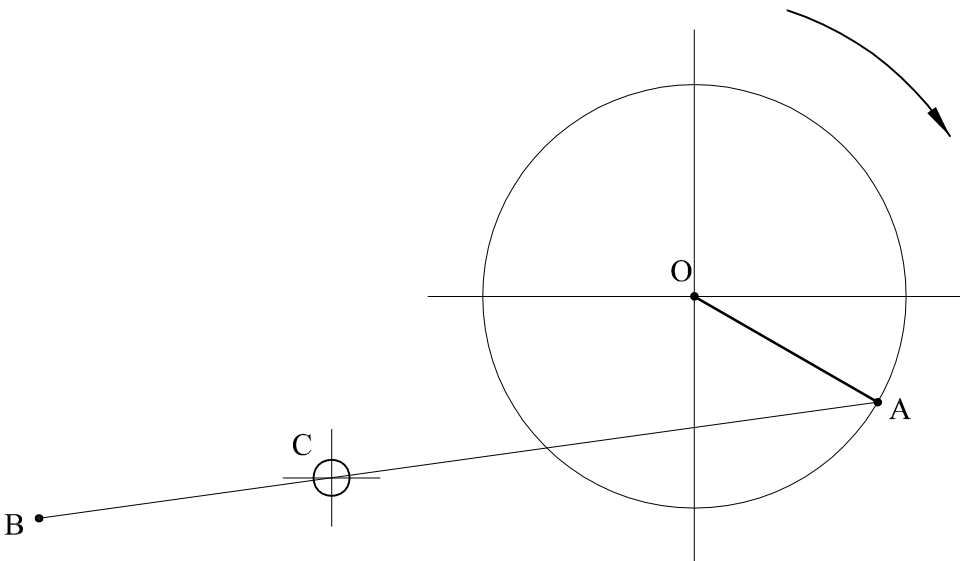
QUESTION No. 3

Draw an involute generated by the hexagon given below.
Arc A is given as start lines.
(10 marks)



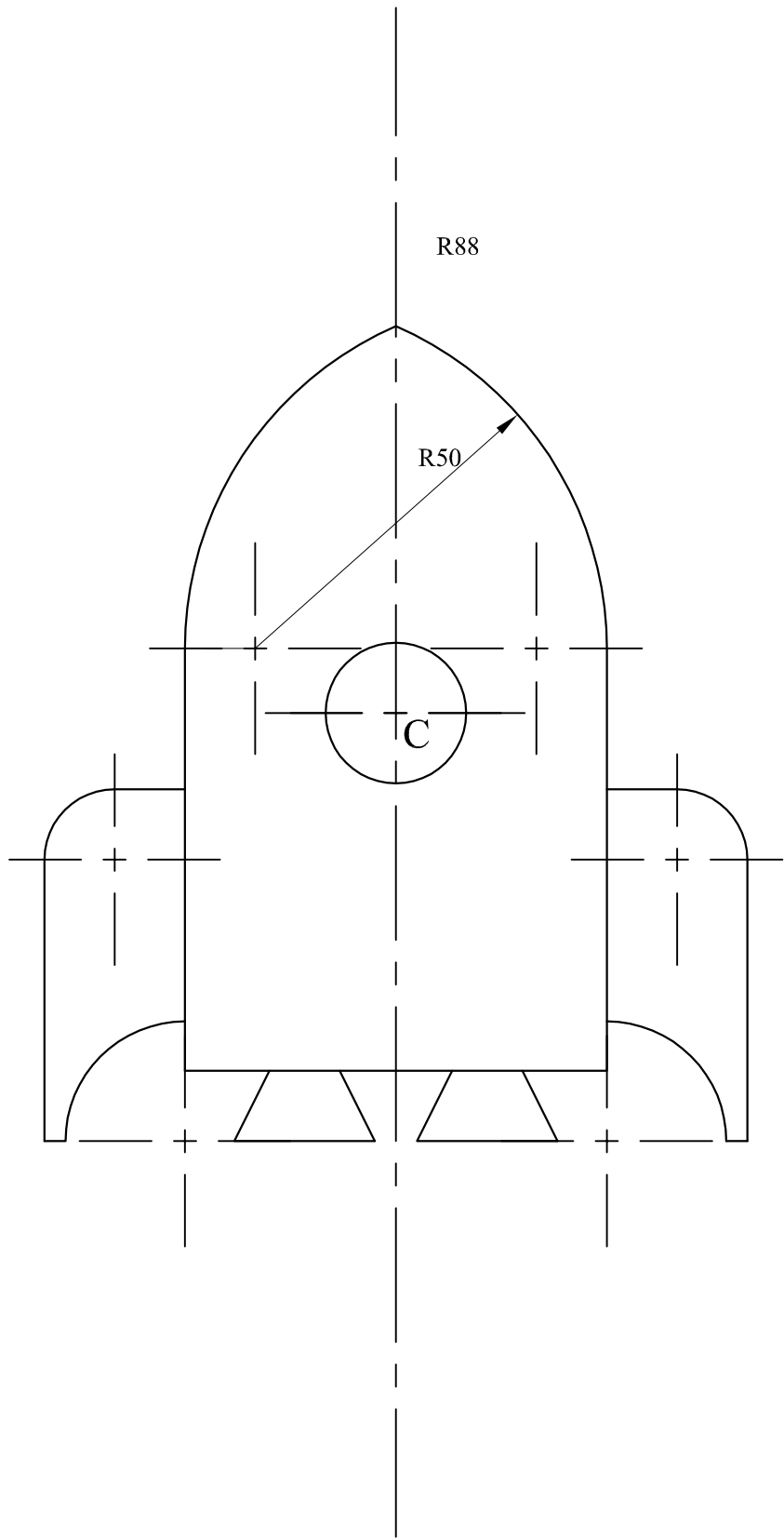
QUESTION No. 4

The figure below shows a line diagram of a simple mechanism where crank OA rotates in a clockwise direction about O. The connecting rod AB slides through a pivot which is free to rotate about a fixed centre C. Plot, full size, the locus of point B for one complete revolution of the crank OA.
(15 marks)



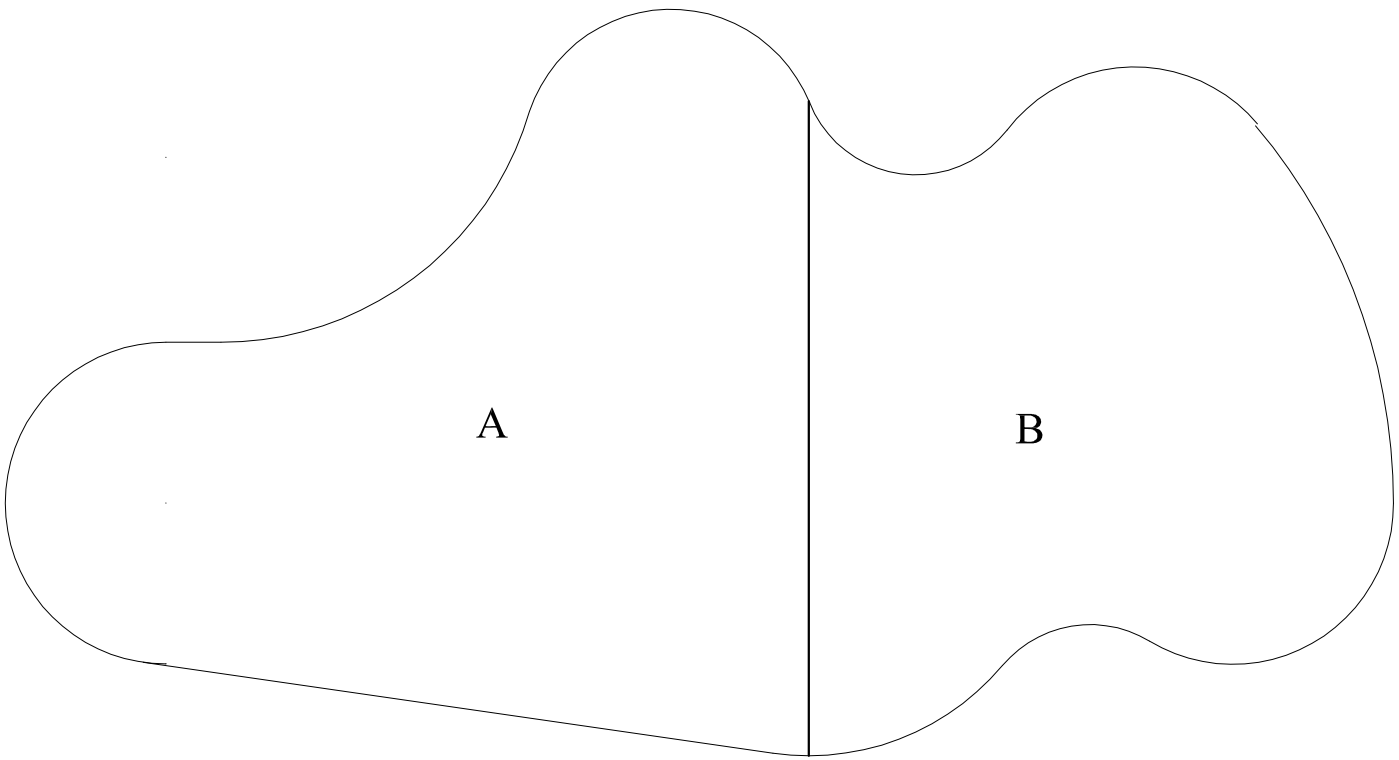
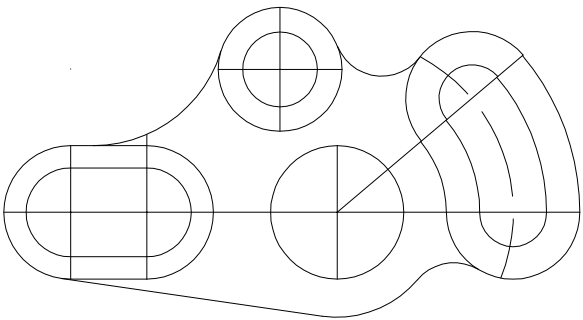
QUESTION No. 5

The diagram shows a Logo for a Toy Company. Enlarge the diagram to a scale of 7:4 so that the Logo can be seen better.
Note: Use point C as the center of enlargement. Enlarge the left hand side of the Logo and then complete the right hand side by projecting measurements, using the center line as a line of symmetry.
(15 marks)



QUESTION No. 6

The figure below shows an Arm gear system and below is an enlarged outline of the system. Find
(a) the area of the part marked as 'A' by using the mid ordinate method, and
(b) the area of the part marked as 'B' using the counting squares method.
Give your answer in cm²
(15 marks)



Area of Part 'A': _____

Area of Part 'B': _____



QUESTION No. 1

The figure below shows a complete front elevation, a complete plan and a pictorial view of a **SUPPORT BRACKET**.

Draw full size, in first angle orthographic projection: a sectional front elevation on the section plane **A - A** in the direction indicated by the arrows.
No hidden detail is required in the solution.

Add the following to your drawing

- (i) the appropriate symbol to show the projection angle and scale used.
- (ii) the appropriate statement regarding the section (A - A), underneath the sectional view. (15 marks)

