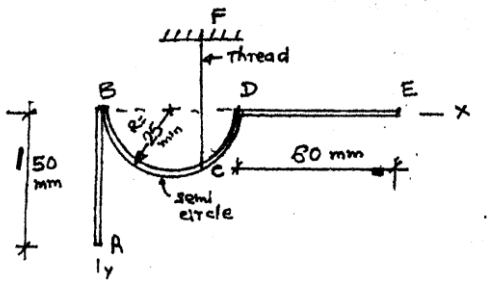
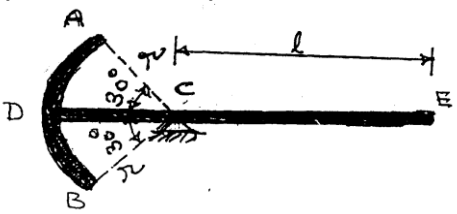
TYPE 2 C.G. OF WIRES

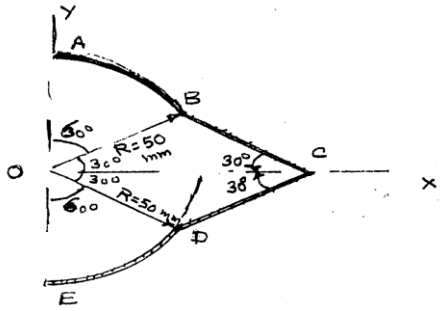
1. Find the position of C (x_c, y_c) for suspending the wire of uniform weight of 4 N/m which is bent as shown in the figure so that the portion DE remains horizontal in equilibrium position.
(Ans : X = 43.94 , Y = 12)



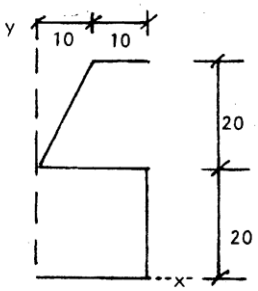
2. The figure below shows is formed of a thin homogeneous wire. Find the length '1' of portion CE of the wire for which the centre of gravity of the figure is located at C.
(Ans : 1.732 r)



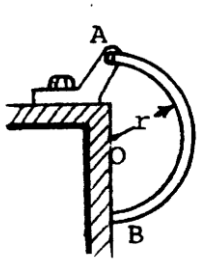
3. Determine the centre of gravity of the wire ABCDE of uniform weight of 2 kN/m bent as shown in the figure.
(Ans : X = 43.94)



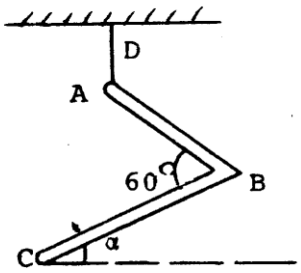
4. Locate the centroid of the 10 mm diameter bar bent in xy-plane as shown in fig. All dimensions in cm.
(Ans : X = 11.5 , Y = 18.1)



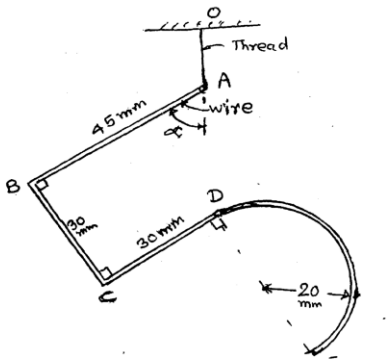
5. A uniform semicircular rod of weight W and radius r is attached to a pin at A and bears against a frictionless surface at B. Determine the reactions at A and B.
(Ans : $H_A = R_B = 2W/3\pi$, $V_A = W$)



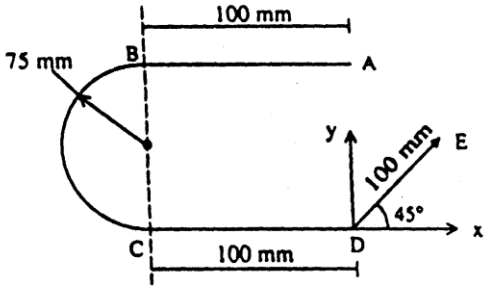
6. A uniform rod ABC is bent at an angle 60º with lengths AB = 2m BC = 4m and is suspended by a string AD. Determine the angle α defining the position of equilibrium.
(Ans : 19.11°)



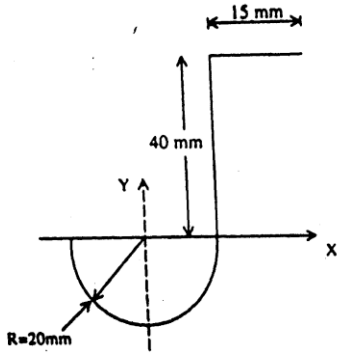
7. A wire is suspended as shown in the figure. Find the angle 'α' for equilibrium.
Take AB = 45 mm, BC = CD = 30 mm and semicircle DE of radius 20 mm.
(Ans : 53.56°)



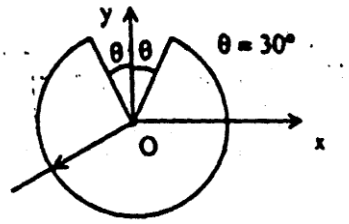
8. A uniform wire is bent into a shape shown in figure. Calculate the position of the C.G.
(Ans : X = 77.065, Y = 67.6)



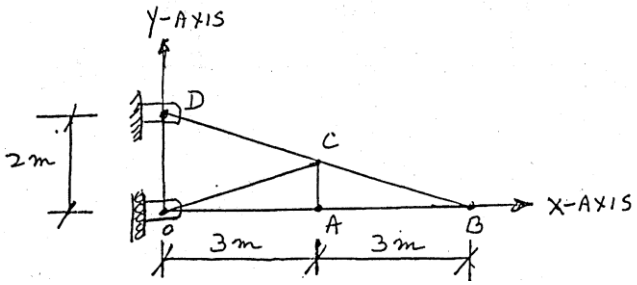
9. A uniform wire is bent into a shape shown in figure. Calculate the position of the C.G.
(Ans : X = 10.29 , Y = 5.1)



11. A uniform wire is bent into a shape shown in figure. Calculate the position of the C.G.
(Ans : Y = - 0.0176 r)



12. Locate the C.G. of the truss assuming all members of identical section.
(Ans : X = 2.712 , Y = 0.51)



13. Find the length L of a portion of bent up wire shown in figure. The C.G. of a whole figure is at point 0.
(Ans : L = 4)