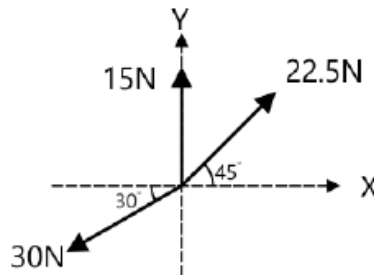
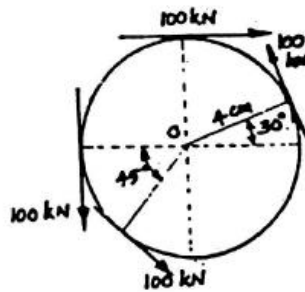


QUESTION BANK

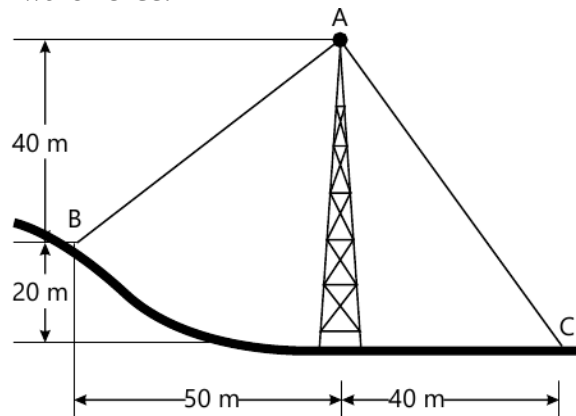
- 1) Find resultant of the force system.



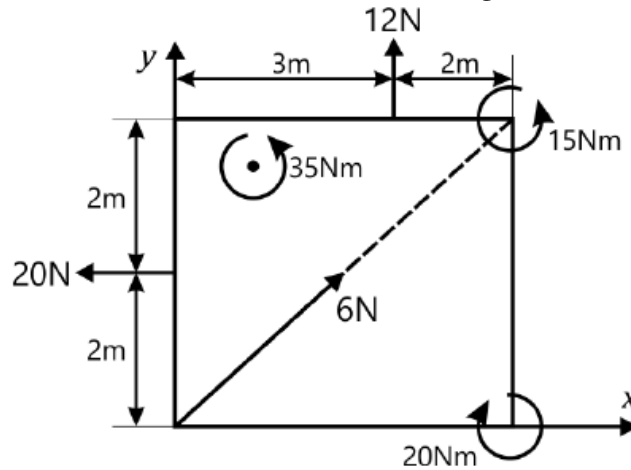
- 2) Determine the resultant of four forces tangential to the circle of radius 4 cm as shown in Figure. What will be the location of the resultant with respect to the Center of the circle?



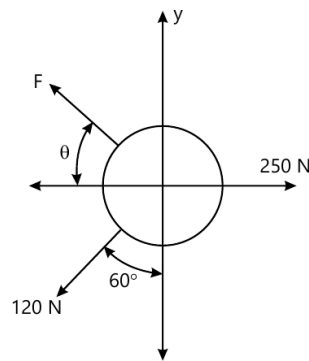
- 3) The guy cables AB & AC are attached to the top of the transmission tower as shown in figure. The tension in cable AC is 8 kN. Determine the required tension T in cable AB such that the net effect of the two cable tension is a downward force at point A. Determine the magnitude R of this downward force.



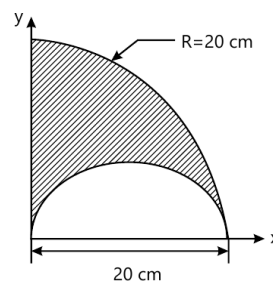
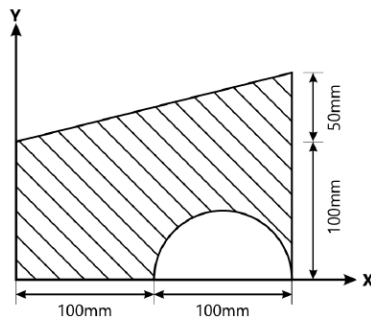
4) Replace the system of forces and couples by a single force and locate the point on the x-axis through which the line of action of the resultant passes.

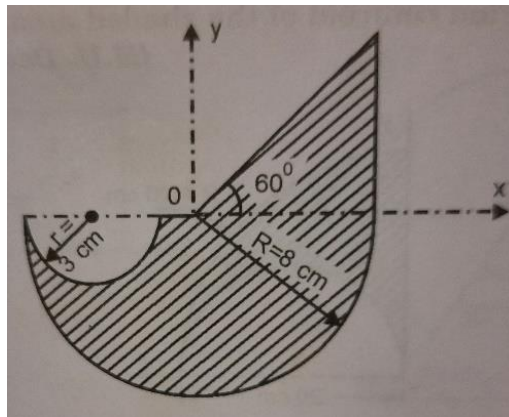
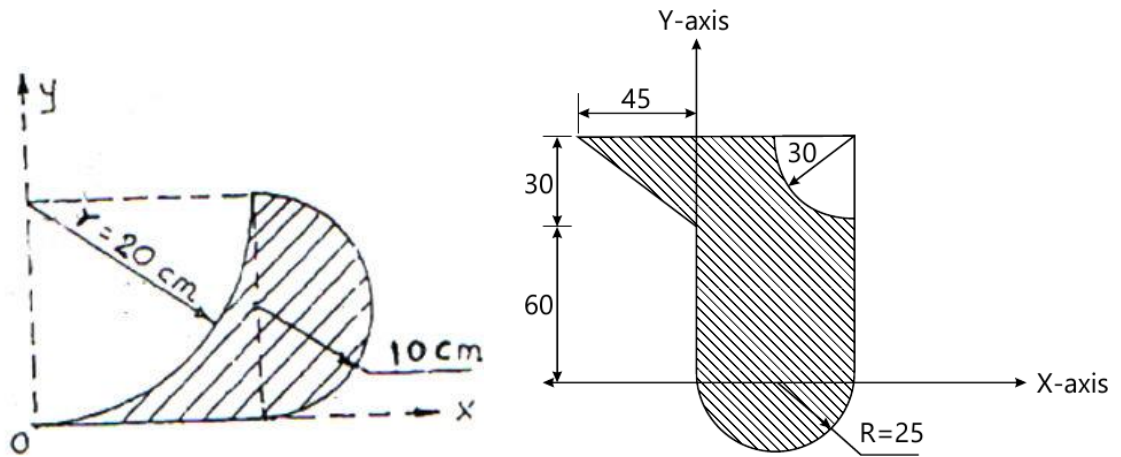


A ring is pulled by three forces as shown in figure. Find the forces F and the angle θ if resultant of these three forces is 100 N acting in vertical direction.

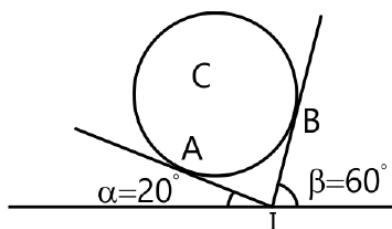


5) Locate the centroid of the shaded areas

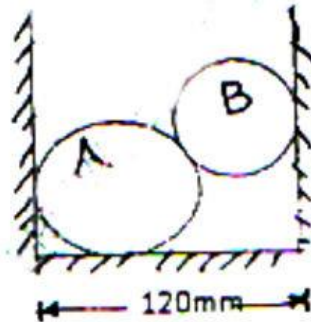




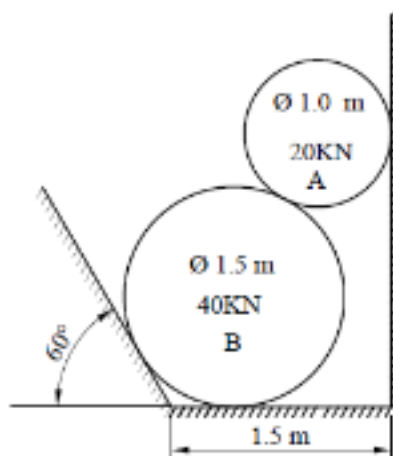
6) A smooth circular cylinder of weight W and radius R rests in a V shape groove whose sides are inclined at angles as shown in fig. to the horizontal as shown. Find the reaction R_A and R_B at the point of contact.



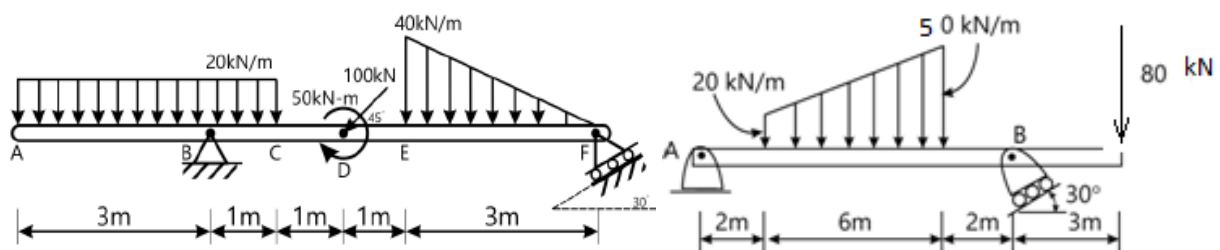
7) Two spheres A and B are kept in a horizontal channel. Determine the reactions coming from all the contact surfaces. Consider the radius of A and B are 40mm and 30mm respectively. Take $W_A = 500 \text{ N}$ and $W_B = 200 \text{ N}$. Refer Figure



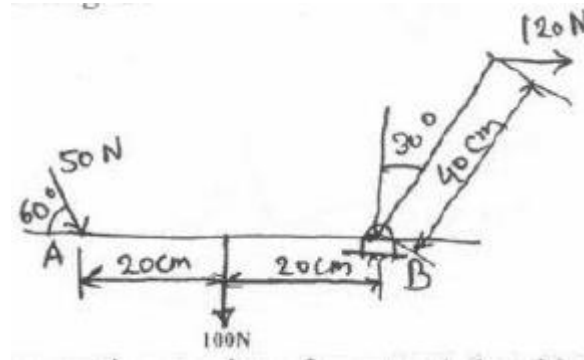
8) Cylinder A (diameter 1m, weight 20kN) and cylinder B (diameter 1.5m, weight 40kN) are arranged as shown in Figure . Find the reactions at all the contact points. All contacts are smooth



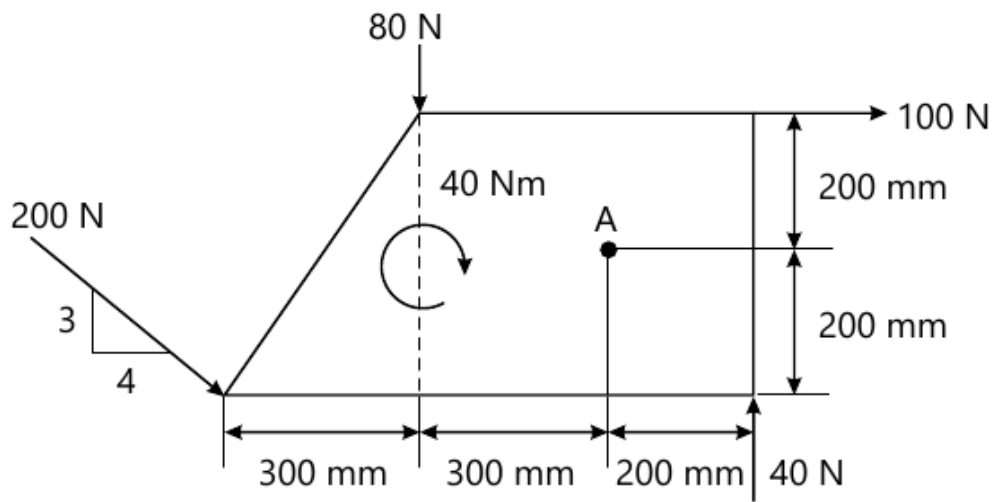
9) Find the support reactions for the beams showing in figure



10) Find the resultant of the force acting on the bell crank level shown. Also locate its position with respect to hinge B.



11) Four forces and a couple are acting on a plate as shown in figure. Determine the resultant force and locate it with respect to point A.



12) Find support reactions at A and B for the beam loaded as shown in figure. A is hinged and B is roller.

