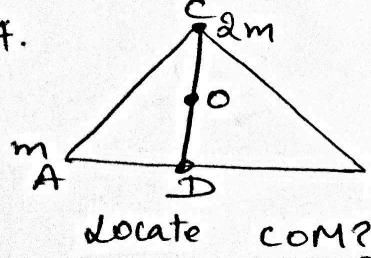


TOP-1

TOPIC → PRAGATI EDUCATION  
Centre of Mass      ROTATIONAL MOTION

1. Prove that centre of mass of two particles divides the line joining the particles in the inverse ratio of their masses.
2. Two identical particles move towards each other with velocity " $v_1$ " and " $v_2$ " resp. What is the velocity of COM?
3. Should COM of body necessarily lie inside the body?
- 4.



Two balls of mass ' $m$ ' each are placed at the two vertices of an equilateral triangle. Another ball of mass  $2m$  is placed at the third vertex of the triangle.  
Locate COM?

5. In HCl molecule, the separation b/w nuclei of two atoms is about  $1.27 \text{ \AA}$  ( $1 \text{ \AA} = 10^{-10} \text{ m}$ ). Find the app. location of CM of molecule, given that the chlorine atom is about 35.5 times as massive as a H-atom and nearly all the mass of an atom is concentrated in all its nucleus.