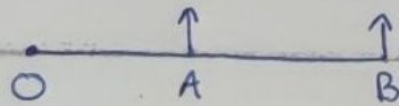


Q 2 particles of mass m each are attached to a light rod of length d , one at its center and other at a free end. The rod is fixed at other end and is rotated in a plane at an angular speed ω . Calculate angular momentum of particle at end with respect to particle at center.

Sol



$$V_{AO} = \omega \left(\frac{d}{2} \right), \quad V_{BO} = \omega d$$

$$V_{BA} = V_{BO} - V_{AO} = \frac{\omega d}{2}$$

$$L_{BA} = mVr = m\omega \left(\frac{d}{2} \right) \frac{d}{2} = \frac{m\omega d^2}{4}$$