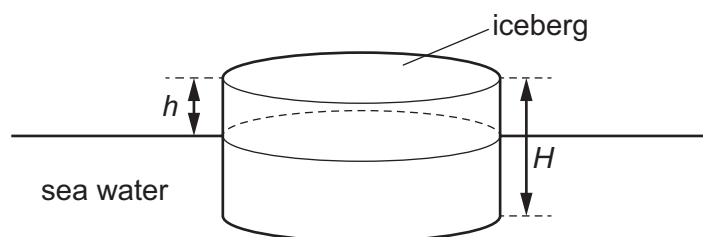


- 11 A helium atom of mass m collides normally with a wall. The atom arrives at the wall with speed v and then rebounds along its original path. Assume that the collision is perfectly elastic.

What is the change in the momentum of the atom during its collision?

- A zero B $0.5mv$ C mv D $2mv$

- 12 A cylindrical iceberg of height H floats in sea water. The top of the iceberg is at height h above the surface of the water.

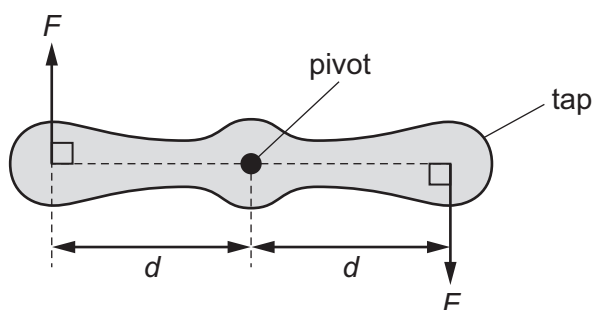


The density of ice is ρ_i and the density of sea water is ρ_w .

What is the height h of the iceberg above the sea water?

- A $\left(1 - \frac{\rho_i}{\rho_w}\right)H$ B $\left(\frac{\rho_i}{\rho_w} - 1\right)H$ C $\frac{\rho_w}{\rho_i}H$ D $\frac{\rho_i}{\rho_w}H$

- 13 A couple is applied to a tap as shown.



What is the torque of the couple?

- A $\frac{Fd}{2}$ B Fd C $2Fd$ D $4Fd$