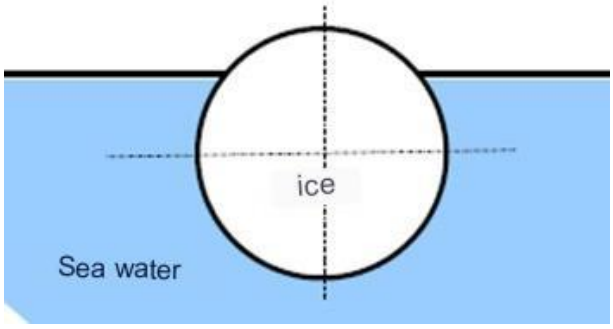
Exercise No. 1:

A spherical iceberg ($\rho_{ice} = 995$ kg/m ^{3}) of 1000 tons floats on the surface of the water. Sea water has a density $\rho_{water} = 1025$ kg/m ^{3} .

1. Find the diameter of the iceberg.
2. Determine the submerged volume fraction ?.
3. Deduce the volume of the submerged iceberg.
4. What will F be if the ice had a cubic shape?.



Exercise No. 2 : A sphere of radius R=10 cm is half-floating (fraction of submerged volume = 50%) on the surface of seawater (density ρ_{sea} =1025 kg/m ^{3}).

1. Determine its weight P.
2. What will be the fraction of the submerged volume if this sphere floated on the surface of the oil (density ρ_{oil} =800 kg/m ^{3})?.

Exercise No. 3:

A closed aquarium is filled with water to a height **H= 6m** , and equipped with a glazed part of rectangular shape of dimensions **(3m x 2m)** which makes it possible to visualize the interior.

1. Determine the resultant of the pressure forces F_p .
2. Calculate the depth Zc of the center of pressure.
3. Repeat questions 1 and 2, changing the rectangular shape of the glazed part to a circular shape with a diameter d= 2 m.