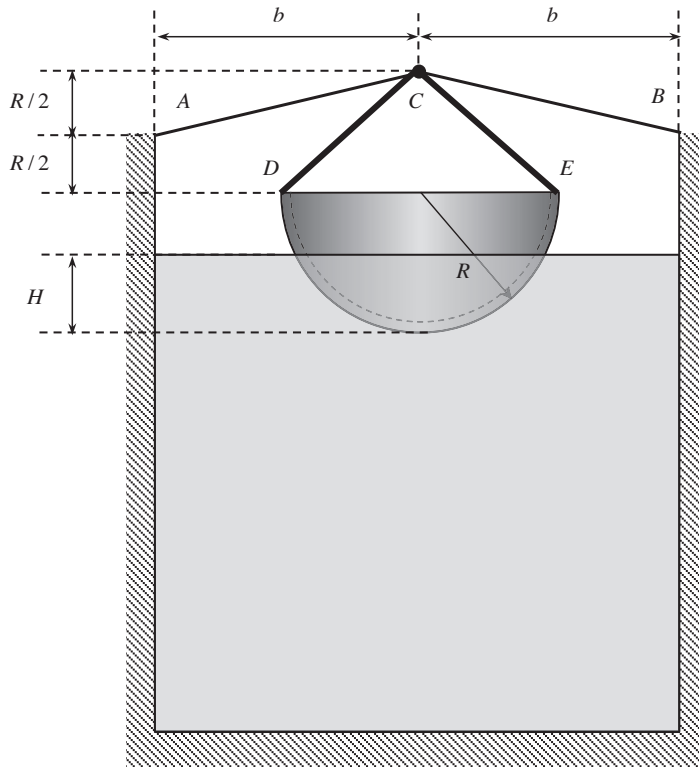


### Homework H15.A

**Given:** A flotation device is made up of a hollow hemispherical cap. Two cables are attached to C on a superstructure for the flotation device. The water in which the float is placed has a mass density of  $\rho$ . The weight of the flotation device and superstructure is to be considered negligible compared to the water that is displaced by the device.

**Find:** Determine the tension in each cable for  $H = R/2$ .

Use  $b = 2R$ . Leave your answer in terms of, at most:  $R, g$  and  $\rho$ .



### Homework H15.B

**Given:** The buoyancy force on a ship is to be calculated through modeling the ship as a prismatic body with a triangular cross section, as shown below. The weight of the ship and its cargo is  $W$ . The water in which the ship floats has a mass density of  $\rho$ .

**Find:** Determine the draft  $d$  of the ship.

Leave your answer in terms of, at most:  $\alpha$ ,  $b$ ,  $g$ ,  $W$  and  $\rho$ .

