Problem 1 Key:

At equilibrium,

$$F_g = F_B$$

$$\rho_{ice} V_{ice} g = \rho_{water} V_{submerged} g$$

$$\frac{V_{sub}}{V_{ice}} = \frac{\rho_{ice}}{\rho_{water}} = \frac{0.916}{1} = 0.916$$

Only 8.4% of the iceberg is above the water surface. $(1 - 0.916 = 0.084)$

Problem 2 key:

$$P_A - P_1 = +\rho_w g d_1$$

$$P_1 - P_3 = +\rho_m g d_3$$

$$P_3 - P_B = +\rho_m g d_4 \sin 45$$

$$P_A - P_B = -\rho_w g d_1 + \rho_m g (d_3 + d_4 \sin 45)$$

$$P_A = P_B + g(-\rho_w d_1 + \rho_m [d_3 + d_4 \sin 45])$$

$$P_A = 202 * 10^3 \, Pa + 9.81 \frac{m}{s^2} \left(-1000 \frac{kg}{m^3} * 0.3m + 13600 \frac{kg}{m^3} * [0.5m + 0.2m \sin 45]\right)$$

$$P_A = 288470 \, Pa = \cancel{288.5} \; 284.6 \; kPa$$