1. The diameters of the pistons shown in figure are $D_1 = 8\text{cm}$, $D_2 = 5\text{cm}$. Determine the pressure in chamber 3, in kPa, when the other pressures are $P_1 = 1050 \text{ kPa}$ and $P_2 = 1400 \text{ kPa}$.

2. A glass tube is attached to a water pipe, as shown in Figure. If the water pressure at the bottom of the tube is 115 kPa and the local atmospheric pressure is 92 kPa, determine how high the water will rise in the tube, in m. Take the density of water to be $1000 \text{ kg/m}^3$. 
