1. Perform the following conversions:
   (a) Convert 250,000 Pa to atm.  
   (b) Convert 0.75 atm to torr.  
   (c) 179 mm Hg to atm  
   (d) 6.00 Pa to mm Hg  
   (e) Convert 352 torr to kPa.

2. Three bulbs, two of which contain different gases are connected as shown below. Draw what will happen to the gas molecules when the valve connecting all three bulbs is opened and the system is allowed to come to equilibrium. Explain.
3. As drawn is the $P_{\text{gas}}$ greater than, less than or equal to the atmospheric pressure? Explain. Redraw the following open-ended manometer to show what it would look like when stopcock A is opened. Explain.

4. What is the gas pressure (in mm Hg) inside a closed container of gas connected to a mercury-filled open-ended manometer when the level in the arm connected to the container is 28.3 cm higher than the level in the arm open to the atmosphere, and the atmospheric pressure is 1.021 atm. Start by drawing a picture of the apparatus described above.

5. Challenge Question: Assume that you have an open-ended manometer filled with chloroform (density = 1.4832 g/mL) rather than the normal mercury (density = 13.546 g/mL) filled ones. What is the difference in height between the liquid in the two arms if the pressure in the arm connected to the gas sample is 0.700 atm, and atmospheric pressure is 0.850 atm? In which arm will the chloroform be higher? Start by drawing a picture of the apparatus described above.