

## Gases and Gas Pressure

1. Describe the differences between solids, liquids, and gases in terms of shape and volume.

Solid

Invariable shape and invariable volume

Liquid

Variable shape and invariable volume

Gas

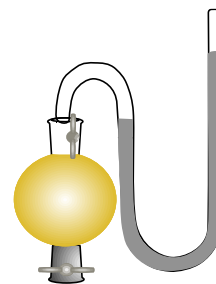
Variable shape and variable volume

2. Is the gas pressure inside the flask greater than or less than the atmospheric pressure? What is the pressure of the gas, in mmHg if the atmospheric pressure is 1.0 atm and the difference in the height,  $\Delta h$ , is 185 mm Hg?

The gas pressure inside the flask is greater than atmospheric pressure

1 atm = 760 mmHg

760 mmHg - 185 mmHg = **575 atm**



3. Convert the following pressures to atm.

a) 393 kPa

$$393 \text{ kPa} \times \frac{1000 \text{ Pa}}{1 \text{ kPa}} \times \frac{1 \text{ atm}}{1.013 \times 10^5 \text{ Pa}} = \mathbf{3.88 \text{ atm}}$$

b) 656 mm Hg

$$656 \text{ mmHg} \times \frac{1 \text{ atm}}{760 \text{ mmHg}} = \mathbf{0.863 \text{ atm}}$$

c) 889 torr

$$889 \text{ torr} \times \frac{1 \text{ atm}}{760 \text{ torr}} = \mathbf{1.17 \text{ atm}}$$

4. Convert 33.2 inches of mercury to torr.

$$33.2 \text{ inHg} \times \frac{2.54 \text{ cmHg}}{1 \text{ inHg}} \times \frac{10 \text{ mmHg}}{1 \text{ cmHg}} \times \frac{1 \text{ torr}}{1 \text{ mmHg}} = \mathbf{843 \text{ torr}}$$