

In this lab you will measure the density of an unknown liquid. You do this by forcing the liquid up a tube using a known amount of pressure (see figure).

Pressurize the bottle of liquid by squeezing the hand pump repeatedly. The liquid should be forced up the tube. Be sure that the silver air release valve is closed (twist it clockwise). Increase the pressure until the level of the liquid in the tube is almost 2 m above the floor. If you overshoot 2 m, you may lower the level of the liquid by opening the air release valve (twist it counter-clockwise).

Using the 2-meter stick, measure  $h_1$  and  $h_2$  (relative to the bottom of the bottle) and calculate  $\Delta h = h_2 - h_1$ . Record the results below. Record the pressure measured by the gauge. (Note that this is the pressure  $P - P_0$  relative to the atmospheric pressure  $P_0$ . Also note that the units of pressure measured by the gauge is oz/in<sup>2</sup>. 16 oz = 1 lb.) Using  $P = P_0 + \rho gh$ , calculate the density  $\rho$  of the liquid and record the result below. Your result should be accurate to the nearest 0.01 g/cm<sup>3</sup>. Please release the air pressure when you are finished.

$h_1 =$  \_\_\_\_\_

$h_2 =$  \_\_\_\_\_

$h =$  \_\_\_\_\_

$P - P_0 =$  \_\_\_\_\_

$\rho =$  \_\_\_\_\_

