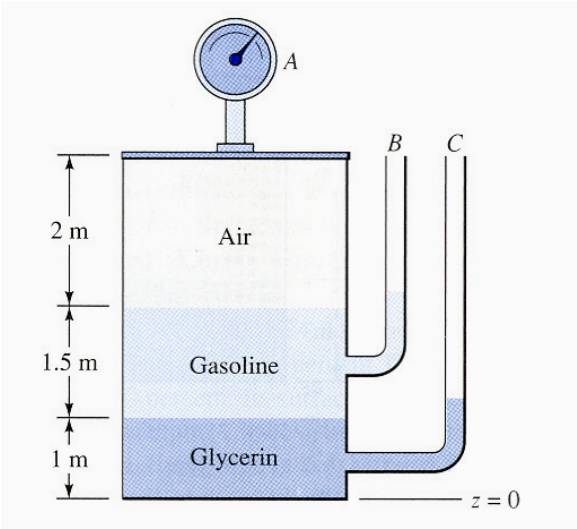
#1.

Any pressure reading can be expressed as a length or *head,* $h = p/\rho g$. What is standard sea-level pressure expressed in *(a)* ft of ethylene glycol, *(b)* in Hg, *(c)* m of water and, *(d)* mm of Methanol? Assume all fluids are at 20°C.

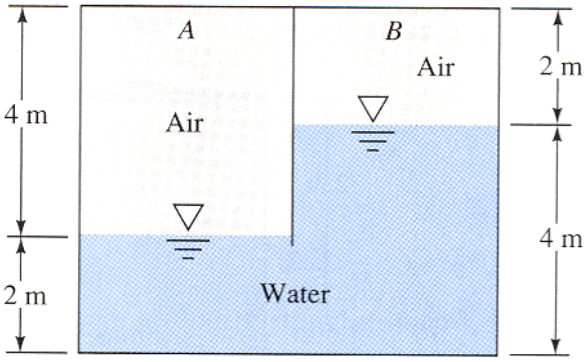
#2.

In the figure, pressure gage *A* reads 1.5 kPa (gage). The fluids are at 20°C. Determine the elevation *z*, in meters, of the liquid levels in the open piezometer tube B and C.



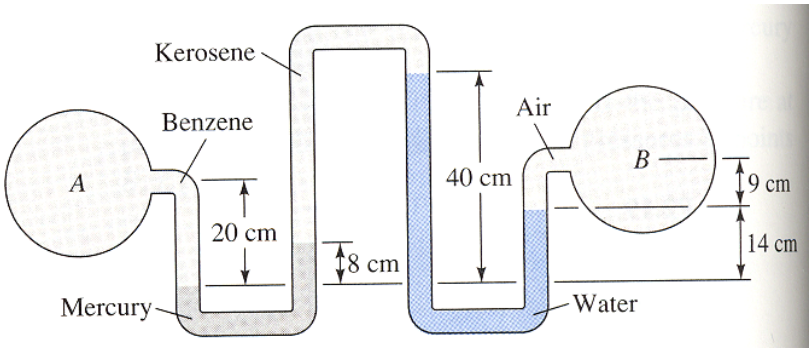
#3.

The closed tank in the figure is at 20°C. If the pressure at point *A* is 95 kPa absolute, what is the absolute pressure at point *B* in kPa? What percentage error do you make by neglecting the specific weight of the air?



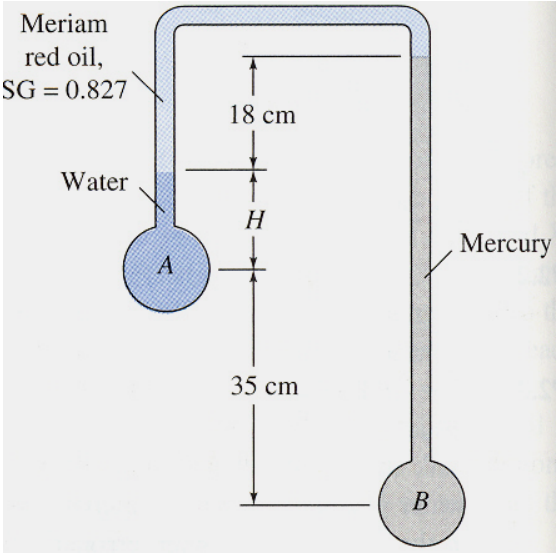
#4.

In the figure all fluids are at 20°C. Determine the pressure difference (Pa) between points *A* and *B*.



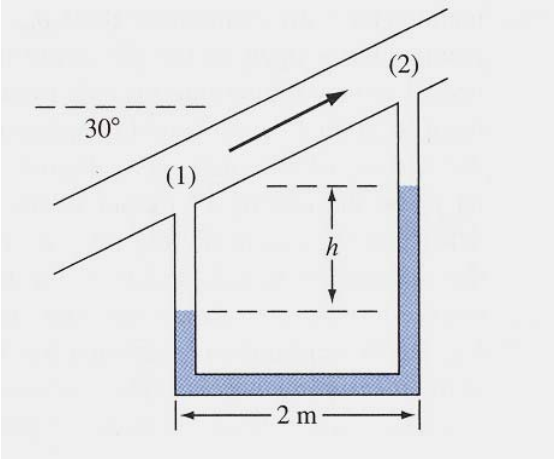
#5.

For the inverted manometer in the figure, all fluids are at 20°C. If $p_B - p_A = 97$ kPa. What must the height H be in cm?



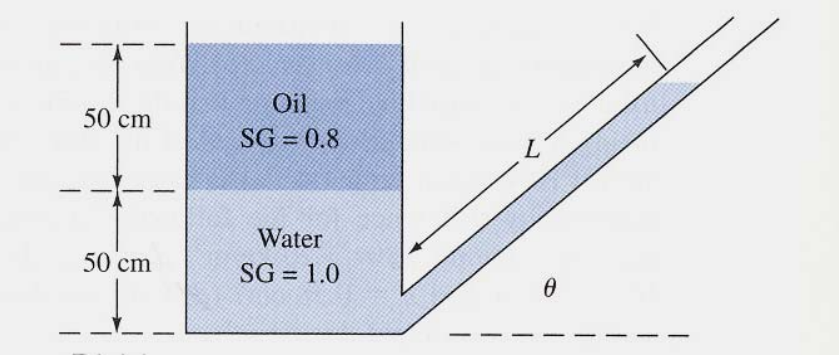
#6.

Water flows upward in a pipe slanted at 30°, as shown. The mercury manometer reads h = 12 cm. Both fluids are at 20°C. What is the pressure difference $p_1 - p_2$ in the pipe?



#7.

Both the tank and the tube are open to the atmosphere. If L = 2.13 m, what is the angle of tilt θ of the tube?



#8
The deepest known point in the ocean is 11,034 m in the Mariana Trench in the Pacific. At this depth the specific weight of seawater is approximately 10,520 N/m^3. At the surface, γ=10,050 N/m^3. Estimate the absolute pressure at this depth, in atm.

#9

The two-fluid differential manometer shown below can measure the very small pressure difference P_A- P_B accurately. Density ρ_2 is only slightly larger than that of the upper fluid ρ_1. Derive an expression for the proportionality between h and P_A- P_B if the reservoirs are very large.