3.6 The value for the absolute pressure will always be greater than that for the gage pressure. [True]

— Absolute pressure is always greater than gage pressure because it is equal to the sum of gage pressure and atmospheric pressure.

3.7 As long as you stay on the surface of Earth, the atmospheric pressure will be 14.7 psia. [False]

- Absolute pressure is influenced by the density, specific weight, and Temperature of the surface. The atmospheric pressure will change as all three factors move from different places.

3.8 The pressure in a certain tank is -55.8 Pa(abs). [False]

— The absolute pressure is always positive

3.9 The pressure in a certain tank is -4.65 psig. [True]

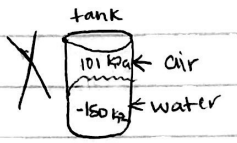
- The gage pressure is negative when it is lower than atmospheric pressure.

Miranda Cooper

TR (11 - 11:30)

HW #2 MET 330

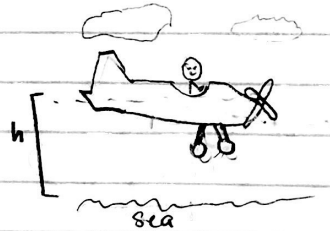
3.10) $P_{gage} = -150$ kPa in a tank is (false,)
since it's not a vacuum P_{gage} has to be more than atmospheric pressure, but $P_{gage} < P_{atm}$
$= -150$ kPa $<$ 101 kPa



3.11) $h = +4000$ ft, atm = 14.7 psi

$\Delta p = \gamma h \rightarrow (0.0764\ lb/ft^3) \times 4000\ ft = 305.6\ lb/ft^2 = 2.12$ psia

$P = P_{atm} - \Delta P \rightarrow 14.7 - 2.12 = 12.58$ psia



3.13) $P_{gage} = P_{abs} - P_{atm}$

$P_{abs} = P_{atm} + \rho g h \rightarrow P_{abs} = P_{atm} + \rho(0)$ ← no height at surface

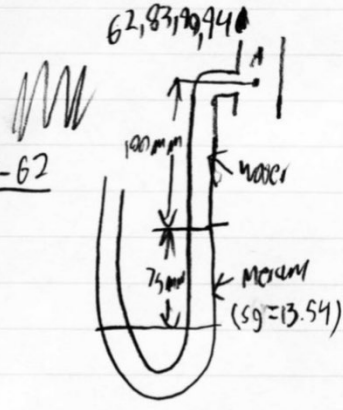
$P_{atm} = P_{atm}$

$0 = P_{atm} - P_{atm}$

MET 330 HW 1.2

1/27/22

62, 83, 90, 94



3-62

Find P_A (gage)

$P_A = -.1M(9.81 kN/m^3) - .075(9.81 kN/m^3)(13.54)$

$= -.981 kPa - 9.962 kPa$

$= \boxed{-10.94 kPa}$

3-83

$P_{atm} = 30.65 in_{Hg}$ $\gamma_{Hg} = \frac{848.7 LB/ft^3}{1728 in^3/ft^3} = .491 LB/in^3$

$P = 30.65 in \cdot .491 lb/in^3 = \boxed{15.05 PSI}$

3-90 $P = -68.2 kPa$ $\gamma_{Hg} = 133.3 kN/m^3$

$\frac{-68.2 kN/m^2}{133.3 kN/m^3} = -.5116 m_{Hg} = \boxed{-511.6 mm Hg}$

3-94

$P = 16M \cdot 9.81 kN/m^3 = 156.96 kN/m^2 = \boxed{156.96 kPa}$