3.6:- The Value for the absolute Pressure will always be greater than that for the gage Pressure.

True

3.7:- As long as you stay on the surface of Earth, the atmospheric Pressure will be 14.7 psia.

True

3.8:- The Pressure in a certain tank is -55.8 Pa(abs).

True

3.9:- *

3.8 & 3.9 are the same Question.
So, 3.8 & 3.9 are (True)

MET 330

3.10) The pressure in a tank is -150 KPa gage
This cannot happen since absolute
Zero Pressure is -101 KPa gage, you canot
go below that.

3.11) What is atmospheric Pressure would
you feel at 4,000 ft above sea Level.
from Appendix E.3 4000 ft x 12.5 Psi abs

3.13) As gage Pressure What is the Pressure
at the surface of a glass of milk?
It would depend on the elevation but
at Sea Level is 0 Psig

HW 3.41

(oil) $sg = 0.90$ $\Delta h = 64$ in

P At A = ?

$P_t = 180$ psi

$$oil + P_{air} = 180$$

$$P_{air} + 0.90 \cdot 62.43 \frac{lb}{ft^3}$$

$$\downarrow$$

$$\frac{62.43 \text{ lb}}{12^3} \cdot 64 \text{ in}$$

$$\downarrow$$

$$P_{air} \cdot 0.90 \cdot 0.0361 \cdot 64$$

$$P_{air} + 0.351 \cdot 64 = 180$$

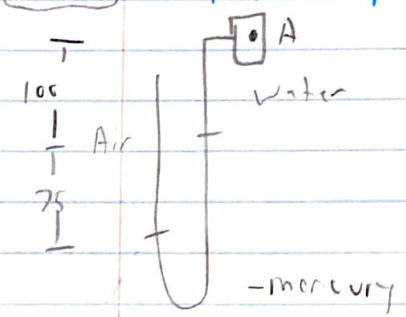
$$P_{air} \times 2.246 = 180 \text{ psi}$$

$$P_{air} = 177.75 \text{ psi}$$

3.62

in mm

Find pressure at A (kPa)



mercury = gage fluid

$sg = 13.54$

$P = \gamma h$

$$P_A - P_{atm} = (13540 \cdot 9.8 \cdot 0.075) + (1000 \cdot 9.81)$$

$$\downarrow$$

$$9951.9 + 980$$

$$= 10932 \text{ Pa}$$

P_A

$P_A - P_{atm}$

$P_A = -10.93$ kPa

Negative because of negative pressure caused by elevation

3.83

$P_{atm} = 30.65 \text{ (mg)} \rightarrow 450.43 \text{ psia}$

Find P_{atm} in psia

$p_{atm} = \gamma_{mh}$

$\gamma = 133.3 \text{ kN/m}^3$ or $\boxed{848.7 \text{ lb/ft}^3}$

$h = 30.65 \text{ in} \rightarrow 2.55 \text{ feet}$

$$848.7 \frac{\text{lb}}{\text{ft}^3} \cdot \left(30.65 \text{ in} \cdot \frac{1 \text{ ft}^3}{1728 \text{ in}^3}\right)$$

$$= \boxed{15.05} \frac{\text{lb}}{\text{in}^3} \text{ or psia}$$

Homework 2

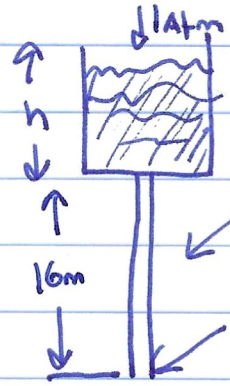
Chapter 3

Problem 90: The pressure in a vacuum chamber is -68.2 kPa put in mm Hg

$$-68.2 \text{ kilopascals} \cdot \frac{1000 \text{ Pascals}}{1 \text{ Kilo Pascal}}$$

$$-68200 \text{ Pascals} \cdot \frac{1 \text{ mmHg}}{133.322 \text{ Pascals}} = \boxed{-511.54 \text{ mmHg}}$$

Problem 94



what pressure must the line be designed to take at ground level

$$1 \text{ atm} + \gamma_{water} \cdot 16\text{m} = P_{B@\text{ground level}}$$

$$101.325 \text{ kPa} + 16 \text{ kPa} = \boxed{117.325 \text{ kPa}}$$