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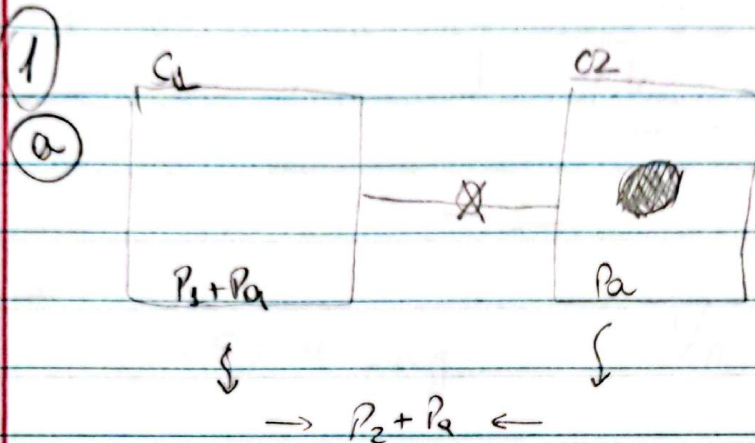
9/14/2023

Advanced Petrophysics

Fall 2023

PGE 381L

Homework #2



Boyle's law:

$$V_1 \cdot (P_1 + P_a) + (V_2 - V_s) P_a = (V_1 + V_2 - V_s) (P_2 + P_a)$$

$$\underline{V_1 P_1} + \underline{V_1 P_a} + \underline{V_2 P_a} - \underline{V_s P_a} = \underline{V_1 P_2} + \underline{V_2 P_2} + \underline{V_s P_2} + \underline{V_1 P_2} + \underline{V_2 P_2} - \underline{V_s P_2}$$

$$V_s P_2 = V_s (P_2 - P_1) + V_2 P_2$$

$$V_s = V_2 + V_1 \frac{(P_2 - P_1)}{P_2} \Rightarrow \boxed{V_s = (V_1 + V_2) - \frac{P_1}{P_2} V_1}$$

b) Equal state