

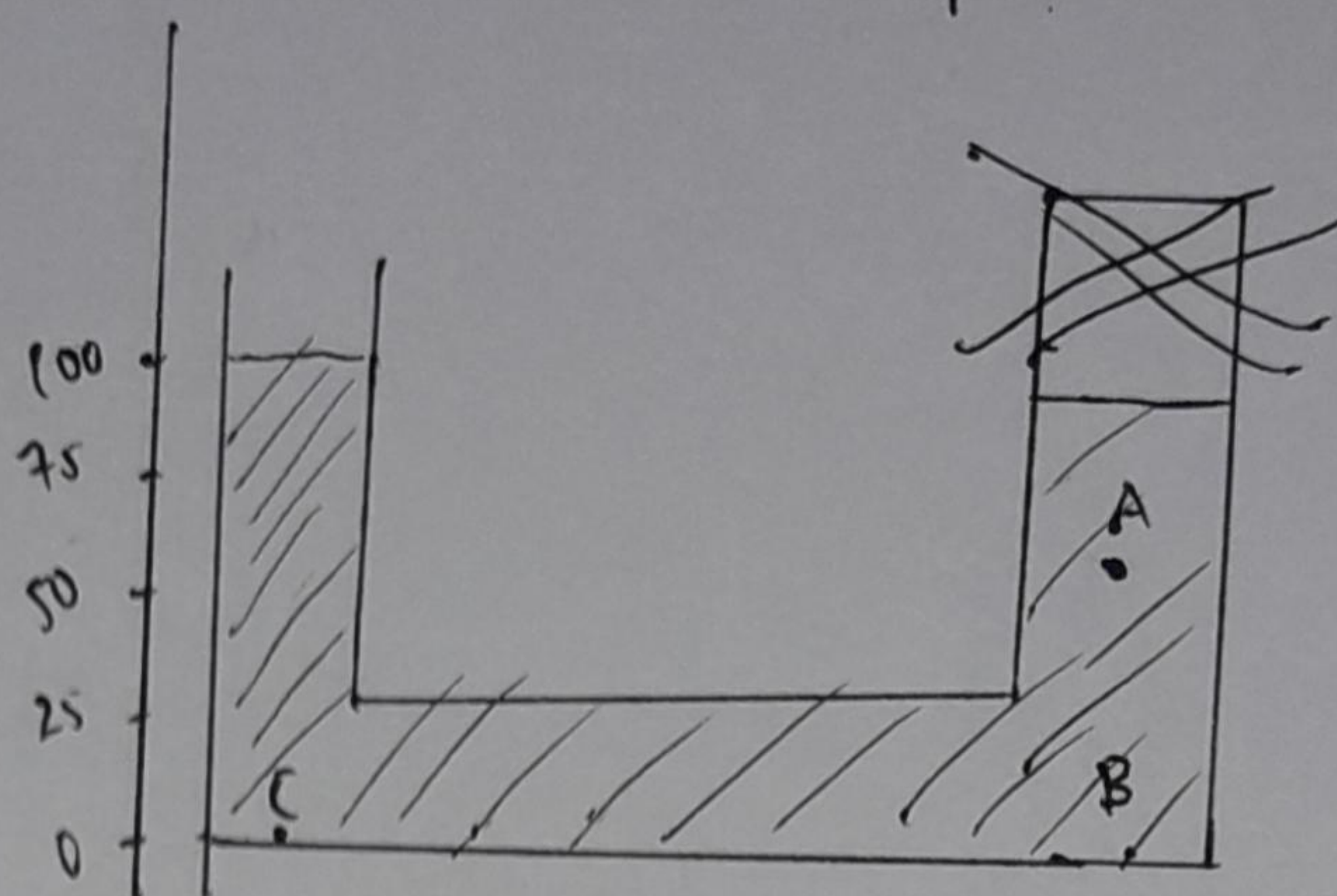
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21/479067 / TK / 52800

Homework 3

The container shown in figure is filled with oil. It is open to the atmosphere on the left.

- What is pressure at point A?
- What is pressure difference ~~between~~ between points A and B?
Between A and C?



a) $h_A = 50 \text{ cm} = 0,5 \text{ m}$
 $\rho_{oil} = 900 \text{ kg/m}^3$
 $P_{atm} = 101.325 \text{ Pa}$
 $g = 9,8 \text{ m/s}^2$

* Pressure at A $\rightarrow P_A = P_{atm} + \rho g h_A$
 $= 101.325 + 900 \cdot 9,8 \cdot 0,5$
 $= 101.325 + 4410$
 $= 105.735 \text{ Pa} = 105,7 \text{ kPa.}$

b. $h_A = 50 \text{ cm} = 0,5 \text{ m}$
 $h_B = 100 \text{ cm} = 1 \text{ m}$
 $h_C = 100 \text{ cm} = 1 \text{ m}$

* Diff. of A and B
 $P_A = P_{atm} + \rho g h_A$
 $P_B = P_{atm} + \rho g h_B$

$P_B - P_A = (P_{atm} + \rho g h_B) - (P_{atm} + \rho g h_A)$
 $= \rho g (h_B - h_A) = 900 \cdot 9,8 (1 - 0,5)$
 $= 4410 \text{ Pa.}$

* Diff. of A and C

$P_C - P_A = (P_{atm} + \rho g h_C) - (P_{atm} + \rho g h_A)$
 $= \rho g (h_C - h_A) = 900 \cdot 9,8 (1 - 0,5) = 4410 \text{ Pa}$