Consider containers with liquid and blocks.

Case A: Block 1 is floating on the liquid. The submerged volume $x V_1 = V_L$ where $V_1$ is the volume of block 1, and $V_L$ displaced volume of the liquid.

Case B: Block 1 and Block 2 are submerged in the liquid.

Notations:

Liquid) density: $\rho_L$, volume: $V_L$.

Block 1) density: $\rho_1$, volume: $V_1$.

Block 2) density: $\rho_2$, volume: $V_2$.

![Diagram with blocks](image)

Choose the correct relationship between densities.

A) $\rho_1 = x \rho_L$.

B) $x \rho_1 = \rho_L$. 
Since block 1 is floating, Archimedes’ principle implies that the weight of the block equals the weight of the displaced liquid, i.e.,

\[ m_1 g = m_L g. \]

This leads to

\[ \rho_1 V_1 = \rho_L V_L = \rho_L x V_1. \]

Thus

\[ \rho_1 = x \rho_L. \]

Answer A

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