An ice cube is floating on the water as shown in the sketch. The height within the water is \( b \) and above the water is \( a \).

Define the following set of symbols.

- \( W_{a}^{\text{ice}} \) = Weight of the ice above the water.
- \( W_{b} \) = Weight of the ice below the water.
- \( V_{a} \) = Volume of the ice above the water.
- \( V_{b} \) = Volume of the ice below the water.
- \( W_{a}^{\text{water}} \) = Weight of water in volume \( V_{a} \).
- \( W_{b}^{\text{water}} \) = Weight of water in volume \( V_{b} \).

The equilibrium condition can be expressed as which of the following?

A) \( W_{b}^{\text{water}} = W_{a}^{\text{ice}} \).

B) \( W_{b}^{\text{water}} = W_{a}^{\text{ice}} + W_{b}^{\text{ice}} \).

C) \( W_{a}^{\text{water}} + W_{b}^{\text{water}} = W_{a}^{\text{ice}} + W_{b}^{\text{ice}} \).
Archimedes’ principle implies

Answer B

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