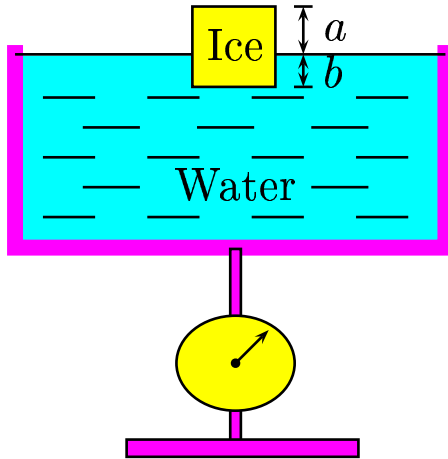


An ice cube is floating on the water as shown in the sketch. The height within the water is  $b$  and above the water is  $a$ .



Define the following set of symbols.

$W_a^{ice}$  = Weight of the ice above the water.

$W_b^{ice}$  = 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.

$W_a^{water}$  = Weight of water in volume  $V_a$ .

$W_b^{water}$  = Weight of water in volume  $V_b$ .

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

- A)  $W_b^{water} = W_a^{ice}$ .
- B)  $W_b^{water} = W_a^{ice} + W_b^{ice}$ .
- C)  $W_a^{water} + W_b^{water} = W_a^{ice} + W_b^{ice}$ .

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Archimedes' principle implies  
Answer **B**