

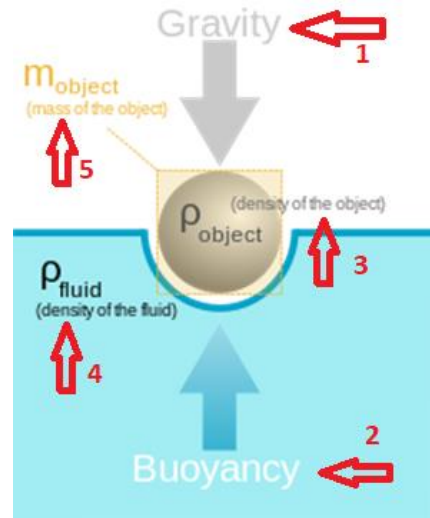
Archimedes law about buoyand force (Archimedes' principle)

<https://www.youtube.com/watch?v=2ReflvqaYg8> - video

In physics, **buoyancy** (*/ˈbɔɪənsi/*) or **upthrust**, is an upward force exerted by a fluid.

A. Write the right names of these objects:

- 1
- 2
- 3
- 4
- 5



Note that the object is floating because the upward force of buoyancy is equal to the downward force of gravity.



B. Draw the arrow for the downward force of gravity and for the upward force of buoyancy in this picture:

C. Mass of the man is 80 kg. What is his force of gravity (it equals the weight of the object) ?

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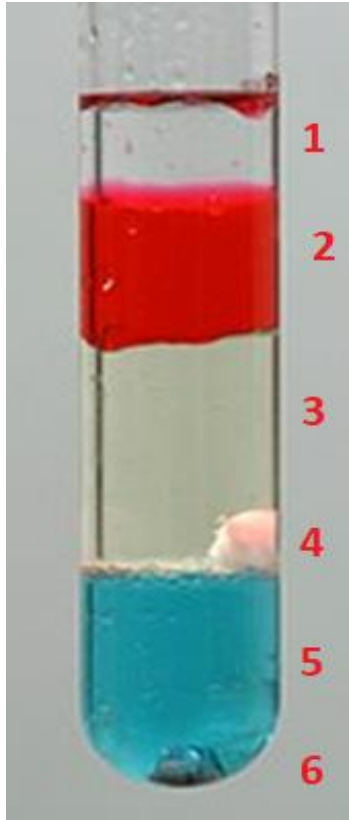
Archimedes law: In other words, for an object floating on a liquid surface (like a boat) or floating submerged in a fluid (like a submarine in water or dirigible in air) the weight of the displaced liquid equals the weight of the object

D. What is the weight of the displaced water in the picture above?

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The Galileo's Ball experiment shows different buoyancy of the same object in different fluid (the ball has buoyancy in water, but in ethanol (which is less dense than water) the ball sinks down).

E. Write the right names of these substances in the picture below (less density is above and greater density is below).



Density column of liquids & solids:

wax

water

aluminium

alcohol

baby oil

vegetable oil



A metallic coin (an old British pound coin) floats in mercury ...

Buoyant force can be counted:

$$F_{vz} = V_{ponořené} \cdot \rho_{kap} \cdot g$$