STEMBOT

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Archimedes' principle

Quizz and FAQ

1) The density of an object ρ is
- The mass divided by the volume ρ = m/V
- The volume divided by the mass ρ = V/m
- The same as its weight
- The same as the size of the object

2) Find the density of a cube of sugar weighing 1.2 g measuring 2 cm on a side ?

3) A concrete slab weighs 150 N. When it is fully submerged under the sea, its apparent weight is 102 N. Calculate the density of the sea water if the volume of the sea water displaced by the concrete slab is 4800 cm3, [g = 9.8 N kg-1]

4) What is the buoyant force experienced by the cube with a volume 2 cm^3 that is:
- submerged halfway into water
- submerged fully into water

5) Archimedes' principle states that :

- the buoyant force exerted on an object that is submerged partially or completely in a fluid is less than the weight of the fluid that is displaced by the object.
- the buoyant force exerted on an object that is submerged partially or completely in a fluid is equal to the weight of the fluid that is displaced by the object.
- the buoyant force exerted on an object that is submerged partially or completely in a fluid is more than the weight of the fluid that is displaced by the object.

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Answers

1) The density of an object ρ is

- The mass divided by the volume $\rho = m/V$

2) Find the density of a cube of sugar weighing
11.2 g measuring 2 cm on a side ?
- The sugar cube has a density of 1.4 g/cm^3

3) A concrete slab weighs 150 N. When it is fully submerged under the sea, its apparent weight is 102 N. Calculate the density of the sea water if the volume of the sea water displaced by the concrete slab is 4800 cm3, [g = 9.8 N kg-1]
- Density of the sea water $\rho = 1020$ kg/m^3

4) What is the buoyant force experienced by the cube with a volume 2 cm^3 that is

- submerged halfway into water F =0,0098 N

- submerged fully into water F = 0,0196 N

5) Archimedes' principle states that :

- the buoyant force exerted on an object that is submerged partially or completely in a fluid is equal to the weight of the fluid that is displaced by the object.