What is Density?

Worksheet

Density is mass per unit volume: = m/V, measured in kg/m or g/cm. Denser materials pack more mass into the same space.

$$\rho = \frac{m}{V}$$

Questions

1. A 200 g object has a volume of 50 cm. Its density is...

A) 4 g/cm
B) 0.25 g/cm
C) 10000 g/cm
D) 250 g/cm

2. Which of these floats on water (density 1 g/cm)?

A) Iron (7.87)
B) Gold (19.3)
C) Ice (0.92)
D) Lead (11.3)

3. What is the unit of density in SI?

A) N/m
B) kg/m
C) m/kg
D) kgm

4. A liquid has a density of 0.9 g/cm and a volume of 200 cm. Its mass is...

A) 180g
B) 222g
C) 90g
D) 1800g

5. A rock has a mass of 300 g and a volume of 100 cm. Find its density.

6. A metal block has a mass of 5400 kg and a volume of 2 m. Find its density.

7. An object has a density of 0.8 g/cm and a volume of 50 cm. Find its mass.

8. Define: What is density?

9. Define: Common density units?

10. Define: Why does an object float or sink?

Answer Key

1. A) 4 g/cm - = m/V = 200/50 = 4 g/cm.
2. C) Ice (0.92) - Ice is less dense than water, so it floats.
3. B) kg/m - Density = mass/volume kg/m.
4. A) 180g - m = V = 0.9 200 = 180g.
5. = m/V = 300/100 = 3 g/cm
6. = m/V = 5400/2 = 2700 kg/m
7. m = V = 0.8 50 = 40 g
8. Mass per unit volume: = m/V.
9. kg/m (SI) or g/cm (common in labs); 1 g/cm = 1000 kg/m.
10. It floats if its density is less than the fluid's density, and sinks if greater.