1. Petrol density = 800 kg/m3. Water density = 1000 kg/m3. Q a) Which has more mass 1 m3 of petrol or 1 m3 of petrol? b) Which has more volume 1 kg of petrol or 1 kg of water? Q) 2) how to calculate volume with density and mass?

$$\rho_1 = 800 \frac{kg}{m^3}$$

$$\rho_2 = 1000 \frac{kg}{m^3}$$

$$V = 1m^3$$

$$m = 1kg$$

Qa) Which one?

Qb) Which one?

Q2) $V - ?$

Solution.

As it is known, mass m, volume V and density ρ are related by the formula:

$$m = \rho V.$$

Qa) Mass of 1 m3 of petrol is $m_1 = \rho_1 V$. And mass of 1 m3 of water is $m_2 = \rho_2 V$ (here, $V = 1m^3$).

As $\rho_1 < \rho_2$, than $m_1 < m_2$. So, mass of 1 m3 of water is more than 1 m3 of petrol.

Qb) Volume of 1 kg of petrol is $V_1 = \dfrac{m}{\rho_1}$. And volume of 1 kg of water is

$V_2 = \dfrac{m}{\rho_2}$ (here, $m = 1kg$).

As $\rho_1 < \rho_2$, than $V_1 > V_2$. So, 1 kg of petrol has more volume than 1 kg of water.

Q2) Volume can be found as $V = \dfrac{m}{\rho}$.

Answer: Qa) water; Qb) petrol; Q2) $V = \dfrac{m}{\rho}$.