

Density and Energy

Name _____

Density is the amount of matter (g) per given volume (mL or cm³)

Energy is the capacity to do work or to supply heat

1. A cork is placed into a container of water and floats on the water. Is the cork more or less dense than the water? _____
2. What is the density of ethanol if 177.5 g of ethanol is in 225.0 mL of water? _____
3. Heptane, C₇H₁₆, has a density of 0.684 g/mL. What volume, in mL, is required to obtain 22.65 g of heptane? _____
4. A solid metal sphere has a radius of 43.2 mm. If the sphere has a mass of 284.2 g, what is the density of the sphere? ($V_{\text{sphere}} = 4/3\pi r^3$)

5. A 153 g baseball has a speed of 39.5 m/s. What is the kinetic energy of the baseball?
6. An oxygen atom has a mass of 5.3×10^{-26} kg. If the atoms is moving at a speed of 425.5 m/s, what is the kinetic energy of the oxygen atom? _____