

## 5.6 Homework solutions

5. mass = 71.68g  
 volume = 8.00 cm<sup>3</sup>  
 Density = ?

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$= \frac{71.68\text{g}}{8.00\text{cm}^3}$$

$$= \boxed{8.96\text{g/cm}^3}$$

∴ using table 1 on pg. 193, the metal is copper

4. mass = 5.00g  
 iron → density = 7.87g/cm<sup>3</sup>  
 (from table 1 on pg. 193)  
 Volume = ?

$$\text{Volume} = \frac{\text{mass}}{\text{density}}$$

$$= \frac{5.00\text{g}}{7.87\text{g/cm}^3}$$

$$= \boxed{0.635\text{cm}^3}$$

∴ the volume is 0.635 cm<sup>3</sup>

6. Volume = 3.75 cm<sup>3</sup>  
 mass = ?  
 copper → density = 8.96g/cm<sup>3</sup>  
 (from table 1 on pg. 193)

$$\text{mass} = \text{density} \times \text{volume}$$

$$= 8.96\frac{\text{g}}{\text{cm}^3} \times 3.75\text{cm}^3$$

$$= \boxed{33.6\text{g}}$$

∴ the mass is 33.6g

7. mass = 1.00kg → convert  
 (1kg = 1000g)  
 $= 1.00\text{kg} \times \frac{1000\text{g}}{1\text{kg}} = 1000\text{g}$   
 volume = 370 cm<sup>3</sup>  
 density = ?

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

$$= \frac{1000\text{g}}{370\text{cm}^3}$$

$$= \boxed{2.70\text{g/cm}^3}$$

∴ using table 1 on pg. 193, the metal is aluminum

10. mass = ?  
 gold bar → density = 19.32g/cm<sup>3</sup>  
 (from table 1 on pg. 193)

l = 18.00 cm  
 w = 9.21 cm  
 h = 4.45 cm

$$\text{Volume} = l \times w \times h$$

$$= 18.00 \times 9.21 \times 4.45$$

$$= 737.72\text{cm}^3$$

$$\text{mass} = \text{density} \times \text{volume}$$

$$= 19.32\frac{\text{g}}{\text{cm}^3} \times 737.72\text{cm}^3$$

$$= \boxed{14,252.75\text{g}}$$

∴ the mass is 14,252.75g