

1. A cube 5.1 cm on a side has a mass of 830 g. Find the density of the cube.

[1] \_\_\_\_\_

2. The density of a gas is  $0.0050 \text{ g/cm}^3$ . Find the mass of  $370 \text{ cm}^3$  of this gas.

[2] \_\_\_\_\_

3. The density of a block of wood is  $0.70 \text{ g/cm}^3$ . What is the volume of the block if its mass is 52.3 g?

[3] \_\_\_\_\_

4. How much heat is required to raise the temperature of 61.6 g of mercury from  $11.0^\circ\text{C}$  to  $81.0^\circ\text{C}$ ? The specific heat of mercury is  $0.13950 \text{ J/g}\cdot^\circ\text{C}$ .

[4] \_\_\_\_\_

5. 8260 J is absorbed by 191 g of water at  $24.1^\circ\text{C}$ . What is the final temperature of the water?

[5] \_\_\_\_\_

6. A 20.0-g sample of an unknown metal at  $94.0^{\circ}\text{C}$  is added to 25.2 g of water at  $14.6^{\circ}\text{C}$ . The final temperature of the system is  $21.5^{\circ}\text{C}$ . What is the specific heat of the metal?

[6] \_\_\_\_\_

7. A 44.2-g sample of copper at  $55.1^{\circ}\text{C}$  is added to 21.2 g of water at  $19.2^{\circ}\text{C}$ . What is the final temperature of the system? The specific heat of copper is  $0.38452\text{ J/g}\cdot^{\circ}\text{C}$ .

[7] \_\_\_\_\_

8. A rectangular aquarium, 31.4 cm by 32.8 cm by 81.3 cm, is filled with water at  $12.7^{\circ}\text{C}$ . How much energy is required to raise the temperature of the water to  $25.7^{\circ}\text{C}$ ?

[8] \_\_\_\_\_