1. A cube 5.2 cm on a side has a mass of 740 g. Find the density of the cube.

2. The density of a gas is 0.0015 g/cm^3 . Find the mass of 225 cm^3 of this gas.

3. The density of a block of wood is 0.67 g/cm^3 . What is the volume of the block if its mass is 71.0 g?

4. How much heat is required to raise the temperature of 35.6 g of copper from 22.0 C to 89.0 C? The specific heat of copper is 0.38452 J/g C .

5. 6140 J is absorbed by 114 g of water at 19.2 C. What is the final temperature of the water?

6. A 29.5-g sample of an unknown metal at 94.0 C is added to 25.2 g of water at 14.6 C. The final temperature of the system is 20.0 C. What is the specific heat of the metal?

7. A 26.0-g sample of copper at 50.3° C is added to 31.4 g of water at 16.9°C. What is the final temperature of the system? The specific heat of copper is 0.38452 J/g C .

8. A rectangular aquarium, 26.5 cm by 38.4 cm by 63.3 cm, is filled with water at 13.9°C. How much energy is required to raise the temperature of the water to 22.9°C?

Answer Key

1. $5.3\ g/cm^3$

2. $0.34\ g$

3 $110\ cm^3$

4. $917\ J$

5. $32.1\ C$

6. $0.261\ J/g\ C$

7. $19.3\ ^{\circ}C$

8. $2{,}430{,}000\ J$