

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 g/cm^3 . Find the mass of 370 cm^3 of this gas.

[2] _____

3. The density of a block of wood is 0.70 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°C to 81.0°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°C . What is the final temperature of the water?

[5] _____

6. A 20.0-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 21.5°C . What is the specific heat of the metal?

[6] _____

7. A 44.2-g sample of copper at 55.1°C is added to 21.2 g of water at 19.2°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°C . How much energy is required to raise the temperature of the water to 25.7°C ?

[8] _____

Key Sheet

[1] 6.3 g/cm³

[2] 1.9 g

[3] 75 cm³

[4] 602 J

[5] 34.4°C

[6] 0.502 J/g·C°

[7] 25.0°C

Key Sheet

[8] 4,550,000 J