

Name _____

Alloy Adventures and Mixture Mysteries Answer Key

1. Mass total = 500 g

$$\text{Volume} = 300/8.0 + 200/5.0 = 37.5 + 40 = 77.5 \text{ cm}^3$$

$$D = 500/77.5 = 6.45 \text{ g/cm}^3$$

2. Mass = $(50 \times 0.9) + (100 \times 1.0) = 45 + 100 = 145 \text{ g}$

Volume = 150 mL

$$D = 145/150 = 0.97 \text{ g/mL}$$

3. Volume = $20/19.3 + 5/8.9 = 1.036 + 0.562 = 1.598 \text{ cm}^3$

$$D = 25/1.598 = 15.6 \text{ g/cm}^3$$

4. Mass = $(100 \times 2.7) + (100 \times 7.9) = 270 + 790 = 1060 \text{ g}$

Volume = 200 cm³

$$D = 1060/200 = 5.3 \text{ g/cm}^3$$

5. Mass = $(60 \times 2.0) + (40 \times 6.0) = 120 + 240 = 360 \text{ g}$

Total volume = 100 cm³

$$D = 360/100 = 3.6 \text{ g/cm}^3$$

6. Equal masses → slightly **closer to the higher-density metal (lead)**, but only slightly above the midpoint.

7. Volume contraction → total volume smaller → **density increases slightly**.