Density & displacement — Student Worksheet

Data from balance and graduated cylinder.

Name: _____ Date: _____ Section: _____

Learning goal: carry units through the calculation, show an equation, and explain the measurement assumptions.

Numerical practice

1. Density of solid sample 1

Container alone: 41.25 g; container + dry solid: 53.67 g. Water level before: 20.00 mL; after: 24.60 mL.

(a) Subtract the empty container mass from the combined mass. [Answer in g]

Working: _____

(b) Subtract the initial water level from the final water level. [Answer in mL]

Working: _____

(c) Divide the sample mass by the displaced volume. [Answer in g/mL]

Working: _____

2. Density of solid sample 2

Container alone: 35.20 g; container + dry solid: 44.16 g. Water level before: 12.50 mL; after: 16.50 mL.

(a) Subtract the empty container mass from the combined mass. [Answer in g]

Working: _____

(b) Subtract the initial water level from the final water level. [Answer in mL]

Working: _____

(c) Divide the sample mass by the displaced volume. [Answer in g/mL]

Working: _____

3. Density of solid sample 3

Container alone: 52.43 g; container + dry solid: 72.23 g. Water level before: 14.00 mL; after: 19.50 mL.

(a) Subtract the empty container mass from the combined mass. [Answer in g]

Working: _____

(b) Subtract the initial water level from the final water level. [Answer in mL]

Working: _____

(c) Divide the sample mass by the displaced volume. [Answer in g/mL]

Working: _____

4. Density of solid sample 4

Container alone: 63.70 g; container + dry solid: 90.70 g. Water level before: 25.00 mL; after: 35.00 mL.

(a) Subtract the empty container mass from the combined mass. [Answer in g]

Working: _____

(b) Subtract the initial water level from the final water level. [Answer in mL]

Working: _____

(c) Divide the sample mass by the displaced volume. [Answer in g/mL]

Working: _____

Concept and interpretation

5. Why must the solid be submerged without bubbles?

_____

_____

6. Why should the balance and cylinder precision be recorded?

_____

_____

Note: Report an appropriate number of significant figures for measured quantities. The online checker evaluates numeric accuracy separately from precision.