

Problem Set - Density #1 - Questions

Major Steps in Calculating Densities, Volumes, & Weights from One Another:

- 1) Rewrite the information given in the text to restate the information given in the problem, **Volume (V)** of the sample, the **Density (D)** of the sample, and/or the **Weight (W)** of the sample, as equations.
- 2) If required, convert the **Volume (V)** of the sample into cm^3 .
- 3) If required, convert the **Weight (W)** of the sample into grams.
- 4) If required, convert the **Density (D)** of the sample into grams/cm^3 .
- 5) Determine how many significant figures are appropriate for the data you were given.
- 6) Write down which of the parameters you are looking for (i.e., **V**, **W**, or **D**).
- 7) Determine the appropriate form of the equation and write it down.
- 8) Substitute the appropriate **V**, **W**, and/or **D** into the equation
- 9) Calculate the required parameter.
- 10) Convert your answer into the correct number of significant figures.

$V = W / D$	$W = V \times D$	$D = W / V$
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Note #1: Show all work for all questions.

Note #2: Use the number of significant figures in your final answer that is justified by the number of significant figures of the data you were given.

1. A sample of stone has a density of $4.23 \text{ g}/\text{cm}^3$ and a volume of 45 cm^3 . What is its weight?
2. A sample of food has a volume of 2.1 liters and a density of 1.05. What is its weight?
3. A sample of Mercury has a volume of 23 ml. What is its weight?
4. A sample of metal alloy weights 1.42 g and has a volume of 0.132 cm^3 . What is its Density?
5. A balloon has a volume of 3.12 liters and a weight of 2.6 grams. What is its density?
6. A rock weights 34 g and has a density of $3.4 \text{ g}/\text{cm}^3$. What is its volume?
7. A sample of Steel weights 1.42 Kg. What is its volume?