

Determining Density Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the formula for calculating density?

undefined. Density = Volume / Mass

undefined. Density = Mass / Volume ✓

undefined. Density = Mass x Volume

undefined. Density = Volume x Mass

The correct formula for calculating density is Mass divided by Volume.

Which of the following are units of density? (Select all that apply)

undefined. g/cm³ ✓

undefined. kg/m³ ✓

undefined. m/s²

undefined. L

Units of density include grams per cubic centimeter and kilograms per cubic meter.

Define density in your own words.

Density is the mass of a substance divided by its volume.

List two factors that can affect the density of a substance.

1. Factor 1

Temperature

2. Factor 2

Pressure

Factors that can affect density include temperature and pressure.

Which of the following statements is true about density?

undefined. Density is independent of temperature.

undefined. Density is the same for all substances.

undefined. Density can help determine if an object will float or sink. ✓

undefined. Density is measured in meters.

Density can help determine if an object will float or sink.

Part 2: Comprehension and Application

Why does ice float on water?

undefined. Ice is heavier than water.

undefined. Ice has a higher density than water.

undefined. Ice has a lower density than water. ✓

undefined. Ice is more solid than water.

Ice floats on water because it has a lower density than water.

Which of the following statements explain why density is important in material science? (Select all that apply)

undefined. It helps in identifying substances. ✓

undefined. It determines the color of a material.

undefined. It affects the strength and durability of materials. ✓

undefined. It is used to calculate the weight of an object.

Density is important in material science for identifying substances and determining their properties.

Explain how the concept of density is used to determine whether an object will float or sink in a fluid.

An object will float if its density is less than that of the fluid, and sink if its density is greater.

A block of wood has a mass of 200 grams and a volume of 250 cm³. What is its density?

undefined. 0.8 g/cm³ ✓

undefined. 1.25 g/cm³

undefined. 2.5 g/cm³

undefined. 0.5 g/cm³

The density of the block of wood is 0.8 g/cm³.

You have a piece of metal with a density of 7.8 g/cm³. Which of the following will happen if you place it in water (density = 1 g/cm³)? (Select all that apply)

undefined. It will float.

undefined. It will sink. ✓

undefined. It will remain suspended.

undefined. It will dissolve.

The metal will sink because its density is greater than that of water.

Describe a real-world scenario where understanding the density of a material is crucial for safety or efficiency.

Understanding density is crucial in industries like construction, where material selection affects safety.

Part 3: Analysis, Evaluation, and Creation

If the temperature of a gas increases, what is likely to happen to its density?

undefined. Density will increase.

undefined. Density will decrease. ✓

undefined. Density will remain the same.

undefined. Density will double.

The density of a gas will likely decrease as temperature increases.

Consider two liquids, A and B. Liquid A has a density of 0.9 g/cm^3 , and Liquid B has a density of 1.1 g/cm^3 . Which of the following statements are true? (Select all that apply)

undefined. Liquid A will float on Liquid B. ✓

undefined. Liquid B will float on Liquid A.

undefined. Both liquids will mix evenly.

undefined. Liquid A is denser than Liquid B.

Liquid A will float on Liquid B because it is less dense.

Analyze how pressure changes might affect the density of a gas in a closed container.

Increasing pressure in a closed container will increase the density of the gas.

Which method would be most effective for measuring the volume of an irregularly shaped object?

undefined. Using a ruler to measure dimensions

undefined. Using a balance scale

undefined. Water displacement method ✓

undefined. Calculating based on mass

The water displacement method is most effective for measuring the volume of irregularly shaped objects.

Evaluate the following scenarios and determine which would require consideration of density. (Select all that apply)

undefined. Designing a ship ✓

undefined. Painting a house

undefined. Building a bridge ✓

undefined. Cooking pasta

Design scenarios like ships and bridges require consideration of density.

Propose a method to determine the density of a new material that is both solid and porous. Explain the steps and reasoning behind your method.

A method could involve measuring the mass and using water displacement to find the volume.