

## Density Calculation Worksheet

Problem 1: Calculate the density of an object with a mass of 50 grams and a volume of 10 cubic centimeters.

Problem 2: An irregularly shaped object has a mass of 120 grams and displaces 60 milliliters of water when submerged. Calculate its density.

Problem 3: A cube has a volume of 27 cubic centimeters and a density of 3 grams per cubic centimeter. Calculate its mass.

Problem 4: A piece of aluminum has a mass of 250 grams and a density of 2.7 grams per cubic centimeter. What is its volume?

Problem 5: A wooden block has a density of 0.8 grams per cubic centimeter and a volume of 400 cubic centimeters. Calculate its mass.

Problem 6: A sphere has a radius of 5 centimeters and a density of 1.5 grams per cubic centimeter. Calculate its mass.

Problem 7: A sample of lead has a mass of 400 grams and a volume of 32 cubic centimeters. Calculate its density.

Problem 8: A substance has a density of 0.65 grams per milliliter. If a sample has a mass of 130 grams, what is its volume in milliliters?

Problem 9: A piece of iron has a volume of 50 cubic centimeters and a density of 7.87 grams per cubic centimeter. Calculate its mass.

Problem 10: A liquid has a mass of 180 grams and a density of 1.2 grams per milliliter. Calculate its volume in milliliters.

Problem 11: A rectangular prism has dimensions of 4 cm x 5 cm x 8 cm and a density of 2.5 grams per cubic centimeter. Calculate its mass.

Problem 12: A substance has a mass of 75 grams and a density of 0.9 grams per milliliter. Calculate its volume in milliliters.

Problem 13: A cylindrical container has a radius of 6 centimeters and a height of 10 centimeters. If it is filled with a liquid of density 0.5 grams per milliliter, calculate the mass of the liquid.

Problem 14: A gas occupies a volume of 500 milliliters at a density of 0.04 grams per milliliter. Calculate the mass of the gas.

Problem 15: A block of ice has a mass of 750 grams and a density of 0.9 grams per cubic centimeter. Calculate its volume.

Remember to use the formula for density, which is:

$$\text{Density (D)} = \text{Mass (M)} / \text{Volume (V)}$$

You can use this formula to solve all the problems on this worksheet. Good luck with your practice!

**Answers:**

The answers to the density calculation worksheet problems:

Problem 1: Density = Mass / Volume = 50 g / 10 cm<sup>3</sup> = 5 g/cm<sup>3</sup>

Problem 2: Density = Mass / Volume = 120 g / 60 mL = 2 g/mL

Problem 3: Mass = Density × Volume = 3 g/cm<sup>3</sup> × 27 cm<sup>3</sup> = 81 g

Problem 4: Volume = Mass / Density = 250 g / 2.7 g/cm<sup>3</sup> ≈ 92.59 cm<sup>3</sup>

Problem 5: Mass = Density × Volume = 0.8 g/cm<sup>3</sup> × 400 cm<sup>3</sup> = 320 g

Problem 6: Mass =  $(4/3) \times \pi \times (5 \text{ cm})^3 \times 1.5 \text{ g/cm}^3 \approx 392.7 \text{ g}$

Problem 7: Density = Mass / Volume = 400 g / 32 cm<sup>3</sup> = 12.5 g/cm<sup>3</sup>

Problem 8: Volume = Mass / Density = 130 g / 0.65 g/mL = 200 mL

Problem 9: Mass = Density × Volume = 7.87 g/cm<sup>3</sup> × 50 cm<sup>3</sup> = 393.5 g

Problem 10: Volume = Mass / Density = 180 g / 1.2 g/mL = 150 mL

Problem 11: Mass = Density × Volume = 2.5 g/cm<sup>3</sup> × (4 cm × 5 cm × 8 cm) = 400 g

Problem 12: Volume = Mass / Density = 75 g / 0.9 g/mL = 83.33 mL

Problem 13: Volume =  $\pi \times (6 \text{ cm})^2 \times 10 \text{ cm} \times 0.5 \text{ g/mL} \approx 565.49 \text{ mL}$

Mass = Volume × Density ≈ 565.49 mL × 0.5 g/mL ≈ 282.75 g

Problem 14: Mass = Volume × Density = 500 mL × 0.04 g/mL = 20 g

Problem 15: Volume = Mass / Density = 750 g / 0.9 g/cm<sup>3</sup> ≈ 833.33 cm<sup>3</sup>

I hope these answers help you verify your calculations!