LESSON MAKER PRO

Matter by Measure

Use mass and volume to find density.

HIGH SCHOOL · PHS.1

PHS.1 "Students will demonstrate an understanding of the nature of matter. Use contextual evidence to describe particle theory of matter. Examine the particle properties of solids, liquids, and gases..."

NAME _____ DATE _____

DENSITY RULES

Density tells you how much mass fits in each unit of volume. Use d = m / V to find density, m = d × V to find mass, or V = m / d to find volume.

WORKED EXAMPLE

Find the sample's density.

SAMPLE MEASUREMENTS

Mass (g)	Volume (mL)
35	7

1. d = m / V
2. d = 35 g / 7 mL = 5 g/mL

Answer: 5 g/mL

PRACTICE 4 problems

1 A sample has a mass of 24 g and a volume of 8 mL. Find its density.

ANSWER _____

2 A liquid has a density of 2 g/mL and a volume of 18 mL. Find its mass.

ANSWER _____

3 A solid has a mass of 48 g and a density of 4 g/mL. Find its volume.

ANSWER _____

4 A liquid has a density of 0.8 g/mL and a volume of 20 mL. Find its mass.

ANSWER _____

APPLY IT Show your work

1 A metal phone stand has a mass of 81 g and a volume of 30 mL. What is its density?

WORK SPACE

ANSWER _____

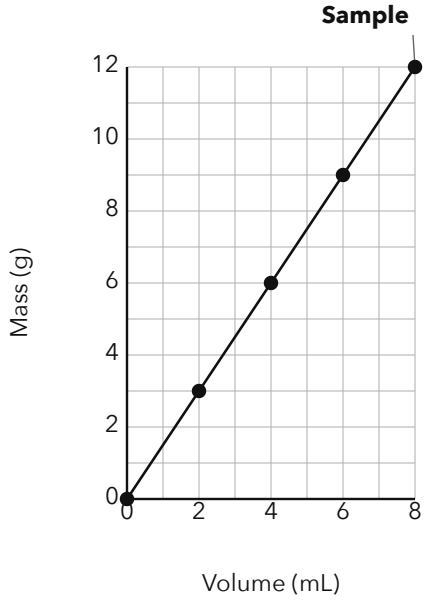
2 You pour 40 mL of a sports drink with a density of 1.1 g/mL. What is the drink's mass?

WORK SPACE

ANSWER _____

CHALLENGE One step up

The graph shows measurements for one liquid. Find its density, then predict the mass of 3 mL.



WORK SPACE AND ANSWER

Matter by Measure

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A sample has a mass of 24 g and a volume of 8 mL. Find its density.	**3 g/mL**
2	A liquid has a density of 2 g/mL and a volume of 18 mL. Find its mass.	**36 g**
3	A solid has a mass of 48 g and a density of 4 g/mL. Find its volume.	**12 mL**
4	A liquid has a density of 0.8 g/mL and a volume of 20 mL. Find its mass.	**16 g**

PART 2 · APPLY IT

1. **2.7 g/mL** Divide mass by volume: 81 g / 30 mL = 2.7 g/mL.
2. **44 g** Multiply density by volume: 1.1 g/mL × 40 mL = 44 g.

CHALLENGE

Density: 1.5 g/mL; mass of 3 mL: 4.5 g.

Accept equivalent calculations with correct units. For the challenge, the graph gives 6 g / 4 mL = 1.5 g/mL, so 3 mL has a mass of 4.5 g.