

Chemistry Practice Problems - Volume, Density, Conversion Factors

1. What is the formula for calculating density?

- A) Density = Mass x Volume
- B) Density = Mass / Volume
- C) Density = Volume / Mass
- D) Density = Mass + Volume

2. A substance has a mass of 50 grams and a volume of 10 cm³. What is its density?

- A) 5 g/cm³
- B) 0.2 g/cm³
- C) 500 g/cm³
- D) 60 g/cm³

3. Convert 2000 milliliters to liters.

- A) 2 liters
- B) 0.2 liters
- C) 20 liters
- D) 200 liters

4. Which of the following units can be used to measure volume?

- A) Grams
- B) Liters
- C) Meters
- D) Seconds

5. If a block of wood has a density of 0.6 g/cm³ and a volume of 5 cm³, what is its mass?

- A) 3 g
- B) 8 g
- C) 0.12 g
- D) 30 g

6. Convert 5 kilograms to grams.

- A) 50 grams
- B) 500 grams
- C) 5000 grams
- D) 50000 grams

7. A liquid has a density of 1.2 g/mL. What is the mass of 10. mL of this liquid?

- A) 12 g
- B) 8 g
- C) 1.2 g
- D) 120 g

8. Convert 10 meters to centimeters.

- A) 1 cm
- B) 10 cm
- C) 100 cm
- D) 1000 cm

9. Which of the following statements is true about density?

- A) It is the amount of space an object occupies.
- B) It is the weight of the object.
- C) It is the ratio of mass to volume.
- D) It is measured in meters.

10. A cube has a side length of 2 cm. What is its volume?

- A) 4 cm³
- B) 8 cm³
- C) 6 cm³
- D) 2 cm³

11. Convert 3.5 liters to milliliters.

- A) 35 mL
- B) 350 mL
- C) 3500 mL
- D) 35000 mL

12. What is the volume of a rectangular box with a length of 3 cm, width of 4 cm, and height of 5 cm?

- A) 12 cm^3
- B) 15 cm^3
- C) 60 cm^3
- D) 30 cm^3

13. If a metal has a density of 8 g/cm^3 and a mass of 40 g, what is its volume?

- A) 5 cm^3
- B) 320 cm^3
- C) 8 cm^3
- D) 0.2 cm^3

14. Convert 0.75 kilograms to grams.

- A) 750 g
- B) 75 g
- C) 7.5 g
- D) 7500 g

15. A container holds 2.5 liters of water. How many milliliters is this?

- A) 250 mL
- B) 2500 mL
- C) 25 mL
- D) 25000 mL

16. Which of the following is a conversion factor for centimeters to meters?

- A) $1 \text{ cm} = 10 \text{ m}$
- B) $100 \text{ cm} = 1 \text{ m}$
- C) $1 \text{ cm} = 1000 \text{ m}$
- D) $1000 \text{ cm} = 1 \text{ m}$

17. Convert 2500 milligrams to grams.

- A) 2.5 g
- B) 25 g
- C) 0.25 g
- D) 250 g

18. What is the density of an object with a mass of 10 kg and a volume of 2 m³?
- A) 5 kg/m³
 - B) 2 kg/m³
 - C) 20 kg/m³
 - D) 0.5 kg/m³
19. A liquid fills a container with a volume of 0.5 liters. How many milliliters is this?
- A) 5 mL
 - B) 50 mL
 - C) 500 mL
 - D) 5000 mL
20. Convert 3 meters to centimeters.
- A) 300 cm
 - B) 30 cm
 - C) 3 cm
 - D) 3000 cm

Answer Key

1. B) Density = Mass / Volume
2. A) 5 g/cm³
- Density = Mass / Volume = 50 g / 10 cm³ = 5 g/cm³
3. A) 2 liters
- 1 liter = 1000 milliliters, so 2000 mL = 2 liters
4. B) Liters
5. A) 3 g
- Mass = Density x Volume = 0.6 g/cm³ x 5 cm³ = 3 g
6. C) 5000 grams
- 1 kilogram = 1000 grams, so 5 kg = 5000 grams
7. A) 12 g
- Mass = Density x Volume = 1.2 g/mL x 10 mL = 12 g

8. D) 1000 cm

1 meter = 100 centimeters, so 10 m = 1000 cm

9. C) It is the ratio of mass to volume.

10. B) 8 cm^3

Volume of a cube = side x side x side = $2 \text{ cm} \times 2 \text{ cm} \times 2 \text{ cm} = 8 \text{ cm}^3$

11. C) 3500 mL

1 liter = 1000 milliliters, so 3.5 L = 3500 mL

12. C) 60 cm^3

Volume = length x width x height = $3 \text{ cm} \times 4 \text{ cm} \times 5 \text{ cm} = 60 \text{ cm}^3$

13. A) 5 cm^3

Volume = Mass / Density = $40 \text{ g} / 8 \text{ g/cm}^3 = 5 \text{ cm}^3$

14. A) 750 g

1 kilogram = 1000 grams, so 0.75 kg = 750 grams

15. B) 2500 mL

1 liter = 1000 milliliters, so 2.5 L = 2500 mL

16. B) $100 \text{ cm} = 1 \text{ m}$

17. A) 2.5 g

1 gram = 1000 milligrams, so 2500 mg = 2.5 g

18. A) 5 kg/m^3

Density = Mass / Volume = $10 \text{ kg} / 2 \text{ m}^3 = 5 \text{ kg/m}^3$

19. C) 500 mL

1 liter = 1000 milliliters, so 0.5 L = 500 mL

20. A) 300 cm

1 meter = 100 centimeters, so 3 m = 300 cm