

Practice Questions for Chemistry Mini-Test #1

1. Identify the following **WHMIS** symbols:



- oxidizing material



- poisonous and infectious materials causing other toxic effects



- compressed gas

2. Classify each of the following **qualitative or quantitative properties** of cake.
Give reasons for your answers.

a. It is circular in shape.

qualitative - shape; can't be measured

b. It has a mass of 1.5 kg.

quantitative - mass is a measurement

c. It tastes like chocolate.

qualitative - taste cannot be quantified
(no units)

d. It is 30cm in diameter.

quantitative - defined measurement
with units

e. Its icing is melting.

qualitative - not a quantifiable property
(no units)

3. Classify the following properties of hydrogen as **physical or chemical properties**.

- a. It is a colourless gas - physical
- b. It reacts with oxygen to form water - chemical
- c. It combines with corn oil to form margarine - chemical
- d. It floats in air - physical
- e. It has a strong odour - physical

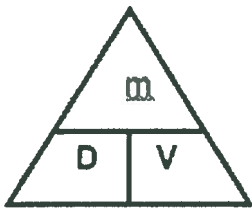
4. Classify each of the following as **physical or chemical changes**. Give reasons for your answers.

- a. When molasses is warmed, it becomes less viscous.
physical change - no chemical reaction
- b. When a chair is painted, it has a new colour.
physical - no chemical reaction
- c. When sugar is stirred into hot water, it dissolves.
physical change - solubility
- d. When egg whites are cooked, they become opaque.
chemical change - odour change, new substance formed
- e. When wood is sawed, some of it changes into sawdust.
physical change - no new substance produced
- f. When wood is burned, ashes remain.
chemical change - new substance produced
- g. When vinegar is added to baking soda, bubbles are seen.
chemical change - produces gas bubbles

5. Chose the best piece of lab equipment to carry out the following:

- a. measuring 8.0ml of water - graduated cylinder
- b. boiling a beaker of water - hot plate
- c. removing a test tube from a hot water bath - test tube clamp
- d. vigorously mixing two liquids together - Erlenmeyer flask
- e. measuring 4.5g of salt - electronic balance

Using the following diagram to help answer the density problems. Be sure to include **ALL** steps required - formula, units and summary statement.



6. Calculate the mass of a liquid with a density of 2.3 g/ml and a volume of 30ml.

$$\begin{aligned} m &= ? & m &= D \times V \\ D &= 2.3 \text{ g/ml} & &= (2.3 \text{ g/ml})(30 \text{ ml}) \\ V &= 30 \text{ ml} & &= 69 \text{ g} \end{aligned}$$

∴ The mass is 69g.

7. An irregular object with a mass of 12kg displaces 1.75L of water when placed in an overflow container. Calculate the density of the object.

$$\begin{aligned} m &= 12 \text{ kg} = 12000 \text{ g} & D &= \frac{m}{V} \\ V &= 1.75 \text{ L} = 1750 \text{ ml} & &= \frac{12000 \text{ g}}{1750 \text{ ml}} \\ D &= ? & &= 6.9 \text{ g/ml} \end{aligned}$$

∴ The density of the object is 6.9g/ml.

8. A piece of wood that measures 3.2cm by 5.7cm by 7.3cm has a mass of 100g. What is the density of the wood? Would it float in water? The density of water is 1.00 g/ml.

$$V = 3.2\text{cm} \times 5.7\text{cm} \times 7.3\text{cm} \\ = 133.2\text{cm}^3$$

$$D = \frac{m}{V} = \frac{100\text{g}}{133.2\text{cm}^3}$$

$$m = 100\text{g}$$

$$D = ?$$

$$= 0.75\text{g/cm}^3$$

So The density is 0.75g/cm^3 and it will float in water.

9. A plastic ball has a mass of 150g. If the density of the ball is 0.80g/cm^3 , what is its volume?

$$m = 150\text{g}$$

$$D = 0.80\text{g/cm}^3$$

$$V = ?$$

$$V = \frac{m}{D}$$

$$= \frac{150\text{g}}{0.80\text{g/cm}^3}$$

$$= 187.5\text{cm}^3$$

So The volume of the plastic ball is 187.5cm^3