

# MOLARITY (M)

Name KEY

$$\text{Molarity} = \frac{\text{moles of solute}}{\text{liter of solution}}$$

Solve the problems below.

1. What is the molarity of a solution in which 58 g of NaCl are dissolved in 1.0 L of solution?

1.0 M

2. What is the molarity of a solution in which 10.0 g of AgNO<sub>3</sub> is dissolved in 500. mL of solution?

gfm of AgNO<sub>3</sub>

Ag	108	}	170
N	14		
O	3x16		

$$\frac{10 \text{ g}}{170} = 0.0588 \text{ mol AgNO}_3$$

$$\frac{0.0588 \text{ mol}}{.5 \text{ L}} = 0.118$$

0.118 M

3. How many grams of KNO<sub>3</sub> should be used to prepare 2.00 L of a 0.500 M solution?

gfm

K	39	}	101
N	14		
O	3x16		

$$M = \frac{\text{mol}}{L}$$

$$0.5 = \frac{\text{mol}}{2 \text{ L}}$$

$$\text{mol} = 1 \text{ mol} \cdot 101 \text{ grams}$$

101 g

4. To what volume should 5.0 g of KCl be diluted in order to prepare a 0.25 M solution?

K	39	}	74.5
Cl	35.5		

$$\frac{5.0 \text{ g}}{74.5} = 0.067 \text{ mol}$$

$$M = \frac{\text{mol}}{L}$$

$$0.25 = \frac{0.067 \text{ mol}}{L}$$

.27 L

5. How many grams of CuSO<sub>4</sub>•5H<sub>2</sub>O are needed to prepare 100. mL of a 0.10 M solution?

Cu  
S  
O

2.5 g

# ELECTROLYTES

Name \_\_\_\_\_

Electrolytes are substances that break up (dissociate or ionize) in water to produce ions. These ions are capable of conducting an electric current.

Generally, electrolytes consist of acids, bases and salts (ionic compounds). Nonelectrolytes are usually covalent compounds, with the exception of acids.

Classify the following compounds as either an electrolyte or a nonelectrolyte.

Compound	Electrolyte	Nonelectrolyte
1. NaCl	✓	
2. CH <sub>3</sub> OH (methyl alcohol)		✓
3. C <sub>3</sub> H <sub>5</sub> (OH) <sub>3</sub> (glycerol)		✓
4. HCl	✓	
5. C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> (sugar)		✓
6. NaOH	✓	
7. C <sub>2</sub> H <sub>5</sub> OH (ethyl alcohol)		✓
8. CH <sub>3</sub> COOH (acetic acid)	✓	
9. NH <sub>4</sub> OH (NH <sub>3</sub> + H <sub>2</sub> O)	✓	
10. H <sub>2</sub> SO <sub>4</sub>	✓	