

# What is Molecular Weight and Molar Mass?

## Worksheet

Molecular weight (or molar mass) is found by adding up the atomic masses of each atom in a formula. For HO:  $(2 \times 1.01) + 16.00 = 18.02$  amu or g/mol.

$$M = \sum (n_i \times A_i)$$

## Questions

1. Molar mass of CO?

- A) 28.01 g/mol
- B) 44.01 g/mol
- C) 60.01 g/mol
- D) 12.01 g/mol

2. How many grams is one mole of HO?

- A) 2.02 g
- B) 16.00 g
- C) 18.02 g
- D) 34.02 g

3. Molar mass of Ca(OH)?

- A) 40.08 g/mol
- B) 58.10 g/mol
- C) 74.10 g/mol
- D) 48.10 g/mol

4. What is the unit of molar mass?

- A) amu
- B) g/mol
- C) kg/mol
- D) g

5. Calculate the molar mass of CO.

6. Find the molar mass of Ca(OH).

7. What is the molar mass of NaCl?

8. Define: What is molecular weight?

9. Define: What is the molar mass of HO?

10. Define: How do you calculate molar mass?

## Answer Key

1. B)  $44.01 \text{ g/mol} - \text{C} (12.01) + 2\text{O} (2 \times 16.00) = 12.01 + 32.00 = 44.01 \text{ g/mol}$ .
2. C)  $18.02 \text{ g}$  - Molar mass of HO =  $18.02 \text{ g/mol}$ , so 1 mole =  $18.02 \text{ grams}$ .
3. C)  $74.10 \text{ g/mol} - \text{Ca} (40.08) + 2\text{O} (32.00) + 2\text{H} (2.02) = 74.10 \text{ g/mol}$ .
4. B)  $\text{g/mol}$  - Molar mass is expressed in grams per mole ( $\text{g/mol}$ ).
5. C:  $1 \times 12.01 = 12.01 \text{ g/mol}$  O:  $2 \times 16.00 = 32.00 \text{ g/mol}$  Molar mass =  $12.01 + 32.00 = 44.01 \text{ g/mol}$
6. Ca:  $1 \times 40.08 = 40.08 \text{ g/mol}$  O:  $2 \times 16.00 = 32.00 \text{ g/mol}$  H:  $2 \times 1.01 = 2.02 \text{ g/mol}$  Molar mass =  $40.08 + 32.00 + 2.02 = 74.10 \text{ g/mol}$
7. Na:  $1 \times 22.99 = 22.99 \text{ g/mol}$  Cl:  $1 \times 35.45 = 35.45 \text{ g/mol}$  Molar mass =  $22.99 + 35.45 = 58.44 \text{ g/mol}$
8. The sum of atomic masses in a molecule, measured in amu or  $\text{g/mol}$ .
9.  $(2 \times 1.01) + 16.00 = 18.02 \text{ g/mol}$
10. Multiply each atom's atomic mass by its count, then add all values.

### **Bounlu**

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