What Is Avogadro's Number and Molar Mass?

Worksheet

Avogadro's number is 6.022 10 particles/mol. Molar mass (M) is the mass in grams of one mole of a substance, numerically equal to its atomic or molecular mass (in u).

Questions

1. Avogadro's number is

A) 3.14 10
B) 6.022 10
C) 2.71 10
D) 1.38 10

2. Molar mass of a compound equals

A) atomic number 10
B) molecular mass in u
C) sum of atomic masses in g/mol
D) atomic mass / 2

3. 5 moles of O (M = 32 g/mol) has mass

A) 160 g
B) 64 g
C) 6.4 g
D) 320 g

4. Number of atoms in 1 mole of Ne is

A) 3.011 10
B) 6.022 10
C) 1 10
D) 12.044 10

5. What is the mass of 2 moles of sodium (Na, molar mass 23 g/mol)?

6. How many moles are in 98 g of sulfuric acid (HSO, M = 98 g/mol)?

7. How many atoms are in 0.5 mol of carbon?

8. Define: What is Avogadro's number?

9. Define: Define molar mass.

10. Define: Is molar mass numerically equal to atomic/molecular mass?

Answer Key

1. B) 6.022 10 - 6.022 10 is the standard value, N.
2. C) sum of atomic masses in g/mol - Molar mass is the sum of atomic masses, in g/mol.
3. A) 160 g - 5 32 = 160 g.
4. B) 6.022 10 - 1 mole = N = 6.022 10 atoms.
5. mass = n M = 2 mol 23 g/mol = 46 g
6. n = mass / M = 98 g / 98 g/mol = 1 mol
7. atoms = n N = 0.5 mol 6.022 10 = 3.011 10 atoms
8. 6.022 10, the number of particles (atoms, molecules) in one mole.
9. The mass of one mole of a substance in g/mol.
10. Yes - atomic mass in u equals molar mass in g/mol by definition.