What is the Mole?

Worksheet

The number of moles (n) equals the mass of a substance (m) divided by its molar mass (M): n = m/M. Moles let chemists count particles by weighing them.

$$n = \frac{m}{M}$$

Questions

1. How many moles are in 44 g of CO (M = 44 g/mol)?

A) 0.5 mol
B) 1 mol
C) 2 mol
D) 44 mol

2. What is the correct mole formula?

A) n = M/m
B) n = m M
C) n = m/M
D) n = m + M

3. How many particles are in exactly 1 mole?

A) 6.022 10
B) 6.022 10
C) 1 10
D) 3.14 10

4. What is the mass of 3 mol of NaCl (M = 58.5 g/mol)?

A) 19.5 g
B) 58.5 g
C) 117 g
D) 175.5 g

5. How many moles are in 36 g of water (M = 18 g/mol)?

6. Find the mass of 0.5 mol of carbon dioxide, CO (M = 44 g/mol).

7. How many moles are in 5.85 g of table salt, NaCl (M = 58.5 g/mol)?

8. Define: What is a mole?

9. Define: What is the mole formula?

10. Define: What is molar mass?

Answer Key

1. B) 1 mol - n = m/M = 44/44 = 1 mol.
2. C) n = m/M - Moles equal mass divided by molar mass: n = m/M.
3. B) 6.022 10 - Avogadro's number is 6.022 10 particles per mole.
4. D) 175.5 g - m = n M = 3 58.5 = 175.5 g.
5. n = m/M n = 36/18 n = 2 mol
6. n = m/M m = n M m = 0.5 44 m = 22 g
7. n = m/M n = 5.85/58.5 n = 0.1 mol
8. The SI unit for amount of substance; one mole contains 6.022 10 particles (Avogadro's number).
9. n = m/M, where n is moles, m is mass in grams, and M is molar mass in g/mol.
10. The mass of one mole of a substance, expressed in grams per mole (g/mol) - numerically equal to the atomic/molecular mass.