Name : _____   Date : _____

Molar Conversion Worksheet

Answer the following questions.

[1] What is the molar mass of cyclohexanol ($C_6H_{11}OH$)?

[2] How much will 6.14×10^{25} atoms of gold weigh?

[3] If we have 0.072 moles of $FeCl_3$ then how many grams would it weigh?

[4] How much does 1 mole of Barium acetate, $Ba(C_2H_3O_2)_2$ weigh?

[5] How many moles are in 2.35 g of H_2O?

[6] How many molecules are present in 0.4 moles of N_2O_5? How many atoms of oxygen and nitrogen are there?

Molar Conversion Worksheet

Answers

[1] What is the molar mass of cyclohexanol ($C_6H_{11}OH$)?

Cyclohexanol has 6C, 12H and 1O
So the molar mass of $C_6H_{11}OH$ is (6 x 12) + (12 x 1) + (1 x 16) = 100 grams/mol

[2] How much will 6.14×10^{25} atoms of gold weigh?

The weight of 6.14×10^{25} gold atoms = $[(6.14 \times 10^{25})/(6.023 \times 10^{23})] \times 108$ grams
= 1.1×10^4 grams

[3] If we have 0.072 moles of $FeCl_3$ then how many grams would it weigh?

$FeCl_3$ has 1Fe and 3Cl
So, the molar mass of $FeCl_3$ is 1x(55.8) + 3x(35.5) = 162.3 g/mol
The weight of 0.072 moles of $FeCl_3$ = 0.072 x 162.3 grams = 11.68 grams

[4] How much does 1 mole of Barium acetate, $Ba(C_2H_3O_2)_2$ weigh?

$Ba(C_2H_3O_2)_2$ has 1Ba, 4C, 6H, and 4O.
So, the mass of 1 mole of $Ba(C_2H_3O_2)_2$ is 1x(137.3) + 4x(12.0) + 6x(1.0) + 4x(16.0)
= 255.3 g/mol

[5] How many moles are in 2.35 g of H_2O?

Molar mass of H_2O = 2x(1.0) + 1x(16.0) = 18 g/mol
Number of moles = (2.35/18) moles = 0.13 moles

[6] How many molecules are present in 0.4 moles of N_2O_5? How many atoms of oxygen and nitrogen are there?

Number of molecules = $0.4 \times 6.023 \times 10^{23}$ molecules = 2.4×10^{23} molecules
Number of oxygen atoms = $2 \times 2.4 \times 10^{23}$ atoms = 4.8×10^{23} atoms
Number of nitrogen atoms = $5 \times 2.4 \times 10^{23}$ atoms = 1.21×10^{24} atoms