Name : _____ Date : _____

Mole Conversion Practice Problems Worksheet

Answer the following questions.

1. How much does 6.25×10^{24} molecules SF_4 weigh?

2. How many moles are present in 245 grams of Li_2CO_3?

3. How many atoms constitute 400 grams of gold?

4. How many molecules constitute 325 grams of N_2O_5?

5. How much does 3.45 moles of $Al_2(SO_4)_3$ weigh?

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Answers

1. How much does 6.25×10^{24} molecules SF_4 weigh?

Molar mass of SF_4 = 108.9 g/mol
6.023×10^{23} molecules weigh 108.9 grams
6.25×10^{24} molecules weigh $108.9 \times [(6.25 \times 10^{24}/6.023 \times 10^{23})]$ = 1130 grams

2. How many moles are present in 245 grams of Li_2CO_3?

Molar mass of Li_2CO_3 = 73.891 g/mol
Number of moles present in 245 grams Li_2CO_3 = (245/73.891) = 3.32 moles

3. How many atoms constitute 400 grams of gold?

Molar mass of Au = 196.96 g/mol
196.96 grams of gold are represented by 6.023×10^{23} atoms
400 grams of gold are represented by = $(400/196.96) \times 6.023 \times 10^{23}$ atoms
= 1.2×10^{24} atoms

4. How many molecules constitute 325 grams of N_2O_5?

Molar mass of N_2O_5 = 108.01 g/mol
108.01 grams of N_2O_5 are represented by 6.023×10^{23} atoms
325 grams of N_2O_5 are represented by $(325/108.01) \times 6.023 \times 10^{23}$ atoms
= 18.1×10^{23} atoms = 1.81×10^{24} atoms

5. How much does 3.45 moles of $Al_2(SO_4)_3$ weigh?

Molar mass of $Al_2(SO_4)_3$ = 342.15 g/mol
1 mole of $Al_2(SO_4)_3$ weighs 342.15 grams
3.45 moles of $Al_2(SO_4)_3$ weigh = 342.15×3.45 grams = 1180.41 grams