

Moles, Molecules, & Molar Masses

1 mole = 6.022×10^{23} particles
1 mole = molar mass

1. Calculate the mass of 1.58 moles CH_4 . [molar mass CH_4 = 16.05 g/mol]
Given: 1.58 moles CH_4
Unknown: ? g CH_4
Will you use molar mass or 6.02×10^{23} to solve this problem?

_____ = _____

2. How many molecules are there in a 0.583 mole sample of H_2O ? [molar mass of H_2O = 18.02 g/mol]
G: 0.583 moles H_2O
U: ? molecules H_2O
Will you use molar mass or 6.02×10^{23} to solve this problem?

_____ = _____

3. How many moles of 5.79×10^{20} molecules of CO_2 ? [molar mass CO_2 = 44.01 g/mol]
G: 5.79×10^{20} molecules CO_2
U: ? mole CO_2
Will you use molar mass or 6.02×10^{23} to solve this problem?

_____ = _____

4. How many moles are in a 35.0 gram sample of H_2O ? [molar mass H_2O = 18.02 g/mol]
G: 35.0 g H_2O
U: ? moles H_2O
Will you use molar mass or 6.02×10^{23} to solve this problem?

_____ = _____

5. How many grams of NaOH do you measure if you need 2.87 moles of NaOH?

_____ = _____

6. How many moles of NaCl are in 2.11×10^{24} particles of NaCl?

_____ = _____

7. How many molecules are present in 1.45 moles of H_2O ?

_____ = _____

8. If you have 10.33 grams of copper, how many moles of copper is that?

_____ = _____

9. If you have 4.90×10^{22} atoms of copper, how many grams of copper is that?

_____ = _____

10. Calculate the molar mass of $\text{Al}(\text{C}_2\text{H}_3\text{O}_2)_3$.

g/mol