**Introduction to the Mole and Molar Mass**

1. What is a mole?
2. What is Avogadro’s number?
3. What do 1 mole of mercury and 1 mole of silver have in common?
4. What do 1 mole of carbon and 1 mole of oxygen have in common?
5. Complete the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| Molecular formula | # moles | # molecules | # atoms |
| H | 1 |  |  |
| Cl | 1 |  |  |
| HCl | 1 |  |  |
| NaOH | 1 |  |  |
| O2 | 1 |  |  |
| CO2 | 1 |  |  |
| CaCl2 | 1 |  |  |
| Mg(OH)2 | 1 |  |  |

1. Complete the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| Molecular formula | # moles | # molecules | # atoms |
| K | 2 |  |  |
| KB | 2 |  |  |
| N2O5 | 2 |  |  |
| H3PO4 | 3 |  |  |
| Zn(NO3)2 | 4 |  |  |

1. How many atoms of nitrogen are there in 1 mole of NO2?
2. How many atoms of hydrogen are there in 1 mole of water?
3. How many atoms of oxygen are there in 1 mole of water?
4. How many atoms of oxygen are there in 1 mole of N2O5?
5. What is the molar mass of
6. Sulfur \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Boron \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Lead \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Phosphorus \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Gold \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Calculate the mass of 1.0 mole of
12. NH3
13. O2
14. S8
15. N2O5
16. MgSO4
17. Zn(NO3)2
18. (NH4)2SO4
19. CO2
20. CaCl2